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HOW THE PARIS SALON OPENED

By W. F. BRADLEY.

MANAGER RIVES, SALON'S MASTER MIND.

PARIS, Dec. 7.—All night long the immense glass roof of the Grand Palais has shed its lurid light over the Champs Elysées, silent and deserted as a city of the dead. In the early hours of the morning, before dawn had begun to point in the East, a belated wanderer strolling up the avenue might have imagined he had fallen on the stage of some immense theater which the stage shifters had suddenly deserted, leaving their scenery in disorder and the lights burning. Within the Palace electricians and painters, upholsterers and mechanics worked gaily at their tasks, shouting and singing and joking with one another, as the light-hearted Parisian workman knows how. Day came and still they worked on; 10 o'clock arrived, the band struck up the "Marseillaise," an elegant crowd surged in at the big doors, and hurriedly the laborers gathered up their tools and belongings and scuttered off to the lower regions. They hardly were out of the way before the curtain rose on the stage with its various assemblage of the best auto product of France..

The ninth annual Paris Automobile Salon was opened, and once again the impossible was performed—all was ready. A hum of excitement, the entrance of a corps of tall, white-breeched Republican Guards, more music, and President Fallières, accompanied by the Minister of Fine Arts, the President of the Senate, deputies, senators, ambassadors, and a dozen nervous and excited policemen, was being officially welcomed by the dignities of the Automobile Club of France. The President was in a hurry, but he found time to visit the Renaults, to congratulate the Panhard chiefs, to have a chat with M. Brasier, to shake hands with M. Darracq, admire his racing machine, and march along the long line of galleries above and below.

Salon Not Unlike a National Fête.

The Paris Salon is more than an industrial exhibition. There is so much decoration and illumination, and so little of the usual signs of buying and selling, that a stranger might imagine the whole was a national fête, or an exhibition of the country's artistic ability. The Olympia show at London may have become the world's mart, the organizers appear to have said, but it shall never be as elegant, as brilliant, as artistic as the Paris Salon. Thereupon they decorated the Place de la Concorde, the Automobile Club of France, the Champs-Elysées, the outside of the Palace, the Avenue Alexandre III. and the overflow industrial hall. All these thoroughfares are brilliantly illuminated, and the Eiffel Tower, on the opposite side of the river, displays its powerful search over the city as a signal to all Paris that the show is open.

Money Has Been Spent Lavishly.

No figures are available as to the expenditure of the club in organizing the Salon, but the amount must be a very considerable one and far exceed anything hitherto known, for never has money been spent so lavishly. As in previous years, the Grand Palais contains the main exhibit, but, owing to the increased number of exhibitors, the Serres on the river banks have had to be abandoned and an immense temporary wooden hall was erected, covering almost all of the vacant space on the Esplanade des Invalides, on the opposite side of the river, barren since the 1900 International exhibition. The avenue running in front of the Palais crosses the river by the handsome Alexandre III. bridge and runs across the Esplanade to the immense

BARON DE ZUYLEN, PRESIDENT A. C. F.

barrack-like Hôtel des Invalides in the rear. It is on this plot, running right across the central avenue, that the temporary hall has been erected in record time. Three weeks ago not a plank was in place; to-day a triumphal luminous avenue leads to an apparently substantial building with an elegant monumental front.

The Grand Palais, both inside and out, is a bewitching fairy scene, and it is no wonder when the thousands of electric lamps burst into light that an admirative "Oh!" rises spontaneously from the vast crowd. Stand decorations are lavish, varied in design, but all artistic. Forged iron is the favorite material, and there are some magnificent specimens of workmanship.

This year the entire ground floor is occupied by automobiles, the center portion being reserved for the older French firms, and the foot of the grand staircase and two rear galleries given up to foreign exhibits. Positions are obtained by the drawing of lots, but it is rather singular that certain important firms should have the good luck to draw the best positions year after year. This comment has been made before.

In the lower and upper galleries are housed the bicycles, motorcycles, tricars, automobile accessories, and motor clothing. A retrospective cycle exhibition, including machines of very early date, occupies a portion of one of the galleries. Restaurants and tea rooms have their place, the press is provided with a room; there is telegraph, telephone and postal offices, and reception rooms for the Automobile Club of France, Touring Club, Aero Club, etc. Despite the increased area, not an inch of space remains, and many an exhibitor has had to be content with less space than was at first accorded him.

The main hall contains a total of 792 stands, the largest number ever recorded. In the foreign section Italy has by far the largest representation; Germany comes next; England is represented by Daimler, Argyll, Eadie, and one Rolls-Royce chassis shown by the French agent.

Not a Single American Exhibitor.

America has not sent a single car, and, with the exception of Rushmore and Dietz lamps, and a couple of minor accessories shown by agents, has no share in the Grand Palais. Even Oldsmobile, for so many years a regular exhibitor, has this year failed to put in an appearance. M. Caillois, home from his Vanderbilt experience, declares that although he has secured the French agency for Thomas cars, he was unable to exhibit this year. There were few English-speaking visitors to the show to-day. Americans were entirely absent, and Britishers rare.

The industrial section was as much behind time as it usually is on opening day. Most of the stands were complete, but in the machinery section the ground was being dug up for the laying of pipes or obtaining foundations for gas engines and heavy machinery. One hundred and ninety-seven stands are contained in this building, giving, with the 792 in the Grand Palais, a total of 989 stands in the entire Salon. French commercial vehicles show a good increase in number; Italy also has more than last year. Motor boats only form a small exhibit, and of aeroplanes and balloons there are none. Machine tools in motion are shown most largely by French and German firms. American machine tools are shown by agents, but are not so well represented as last year. It will be fully two days yet before the industrial section is in full working order.

TENDENCIES OBSERVED IN THE SALON

PARIS, Dec. 7.—Opening day at the Paris Salon is a ladies' day, a champagne day, a fête day, the crowd's day—in fact, anybody's day except the man who wants to study automobile design. Under such conditions any mechanical report must be incomplete.

The outstanding feature of the show is the number of six-cylinder motors. Yet the number of French firms having followed the lead and taken advantage of the booming done by the British Napier Company is not quite as large as rumor had forecast. Renault, Lorraine-Dietrich, Panhard, C. G. V., Bayard-Clément are five leading constructors remaining true to four-cylinder engines. On the contrary, Hotchkiss, Darracq, Mors, Clément, Gladiator, Mercedes, Fiat, Itala, Brasier, Léon-Bollée, Rochet-Schneider, Berliet, all show sixes. In every case the cylinders are cast in pairs, and on the Mors the last pair has gone partly behind the dashboard. Excepting the alterations which six-cylinders necessarily entail, each manufacturer has

Sixes Closely Resemble Fours.

adhered closely to the characteristics of his four-cylinder motors. The appearance of a Brasier six was a surprise to most people, the final decision to build this class of engine having been taken only a few days ago. A motor mounted on a bench and minus its ignition, water-cooling, piping, etc., was all that was shown, no complete six-cylinder Brasier car being yet in existence. It has 112 by 130 bore and stroke and will develop 50 horsepower. A glance at the machines was sufficient to show that many of the sixes had not even turned on the testing block; possibly some of them never will turn. Darracq, Hotchkiss and Itala adopt cardan shaft drive for their six-cylinder models, all other firms having countershaft and side chains. Propeller shaft drive has gained in popularity, most French firms adopting this form of transmission for low and moderate power cars, although their more powerful vehicles may have chains.

An interesting feature of the Charron, Girardot & Voigt cars is the use of an oil-tight case for side chains. This is the first appearance of a chain case on a French car, although an English maker adopted them last year. The C. G. V. case consists of a fixed piece riveted to the distance rod, a front cap dismountable

First Chain Case on a French Car.

by the aid of four hooks, and an upper and a lower part each dismountable by withdrawing a few bolts. To verify the tension of the chain, lubricate, or examine it, all that is necessary is to take off the front cap. The regulating of the chains is ingeniously provided for without disturbing the gearcase, by a single screw.

Apart from the six-cylinder boom, the most important feature is the tendency of high-grade makers to establish a special machine for town use. This is not merely an ordinary chassis on which has been mounted an example of the coach builder's art in which any woman would be happy to travel to the opera house, but a chassis especially designed for city work and combining the silence and elegance of an electric with the best features of a gasoline motor. Brasier, Mors and C. G. V.—to quote at hazard—are three firms specializing this; and although all three firms use side chain drive for their higher power cars, for their town models they all adopt propeller shaft transmission to rear axle.

The C. G. V. is one of the most interesting of this class of machine. It has a fairly long wheelbase, in order to accommodate a comfortable side-entrance body. The rear of the chassis is raised, the front narrowed, leaving considerable room between the front wheels and side frames to allow of short turning. Instead of being placed at the right-hand side the steering column

Making Special Vehicles for Town Use.

is at the left, change-speed and brake levers in the center. Magneto is carried in front, water tank is in front of dashboard, thus considerably simplifying piping, all valves are on one side, and oil tank is under the bonnet at right-hand side of motor. An important feature is the suspension. In front are long semi-elliptic springs and in the rear a transverse spring to which are shackled longitudinal C springs.

The Mors town vehicle is of 15 horsepower, with a four-cylinder motor in one block, valves all on one side, transmission by propeller shaft. Fiat's entirely original shaft-driven chassis for town use had not arrived when the Salon opened.

Renault has abandoned the transverse rear spring in favor of three-quarter elliptic springs at the rear, this modification being adopted on all the models. Transverse rear springs have not increased in number, experience having shown that they have a prejudiced twisting effect on the rear of chassis. Longitudinal springs, however, are longer and broader than ever. Another new feature on the Renault stand is a self starter.

Mechanical changes this year are very few. On a cursory glance 1907 four-cylinder cars might be mistaken for last year's models, no constructor having radically departed from his previous line of manufacture. It is only on close examination that small but useful improvements are noticed. Pressed steel frames reign supreme, even De Dion-Bouton, who so long remained true to tube frames, now falling in line with the majority. Brakes are strengthened all round; several devices for using the engine as a brake are shown. Steering gear, too, is made stronger than before, and the connecting bar is more frequently found behind the front axle. The Renault machines are an example of this

The locking gate type of lever is more frequently seen. In a few cases the brake lever automatically locks the gear lever in neutral point, thus preventing gears being accidentally put into mesh.

The Fiat firm showed a car of special interest to Americans, being indeed especially constructed for road conditions in the United States. It carried a two-seated runabout body with cape hood and Huillier swinging wind shield, the lower end of which hooks on to the dashboard. Behind the seats is a chest with side-entrance door, opening back to front, in which is contained two special trunks sliding in on grooves and secured from shaking by hooks. Behind the chest is a lower platform which, on being lifted up, reveals a felt-lined case with four divisions. A special seat is provided for the chauffeur on the left-hand footboard, on a level with the driver's feet. The back of this seat forms a low side door, keeping draughts and dust away from the feet of the occupants of the car. On the right-hand side is a low door to correspond with the arrangement on the opposite side. A broad leather strap fastens from the wind shield support to a hanger on the side of body, and effectively prevents the chauffeur being thrown to the ground by a sudden jerk of the car. The horn is a novelty, consisting of a length of tube coiled round itself and having openings at the center of the coil for the emission of sound. It is compact and neat. For an autoist

HOW THE EXTERIOR OF THE BRILLIANT SALON LOOKED AT NIGHT WITH ITS SUP

Partisans of leather-faced cone and metallic clutches remain in their respective positions. Such important firms as Darracq and Hotchkiss employ a leather-faced cone clutch for their most powerful models, while Panhard and Bayard-Clément, among many others, keep their respective types of metal clutches for both low and high-power machines. Honeycomb radiators are losing ground in favor of gilled tube radiators. Thermo-syphon has not increased its number of partisans, Renault alone of the big firms retaining it for large cars. Water circulating pipes are simplified, making engine more accessible. Panhard, for instance, mounts the pump on the same shaft as the magneto, the two turning at the same speed as the motor, this disposition reducing the number of gears. In the new Panhard model the distribution of water in the cylinders is by series, the water entering the fourth cylinder, passing successively into the three others and then entering the radiator.

Carbureters have received close attention, simplification has followed, the regulator being now banished from many of these organs. A hot-water jacket for the carbureter replaces hot air from the exhaust in several cases, as on the 1907 Mercedes.

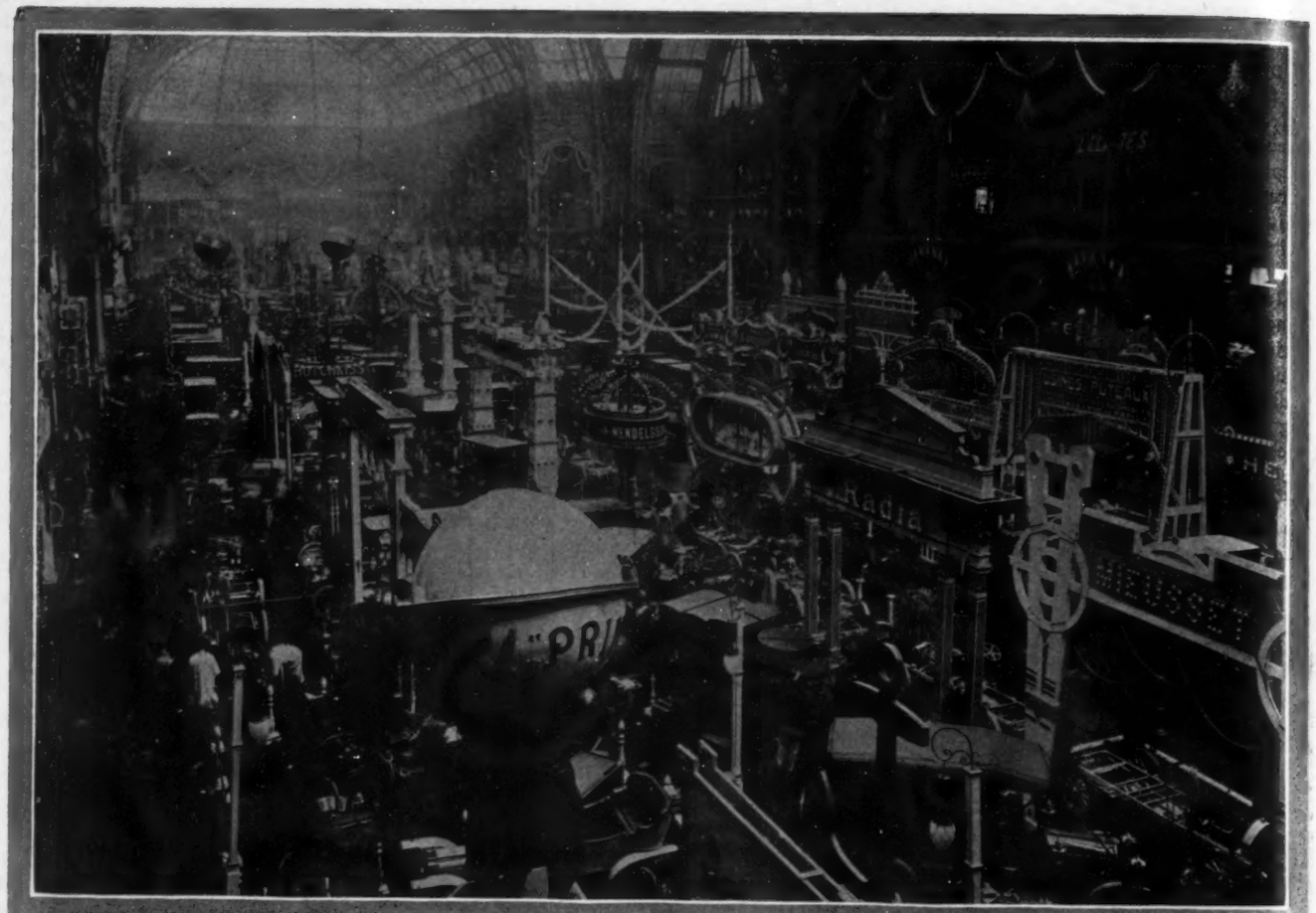
Change-speed gears have improved, and there are several ingenious attempts to obtain direct drive on third and fourth gears.

traveling alone, or with one friend and a chauffeur, the Fiat model is all that could be desired, having comfortable seating capacity, ample baggage room and no unnecessary weight.

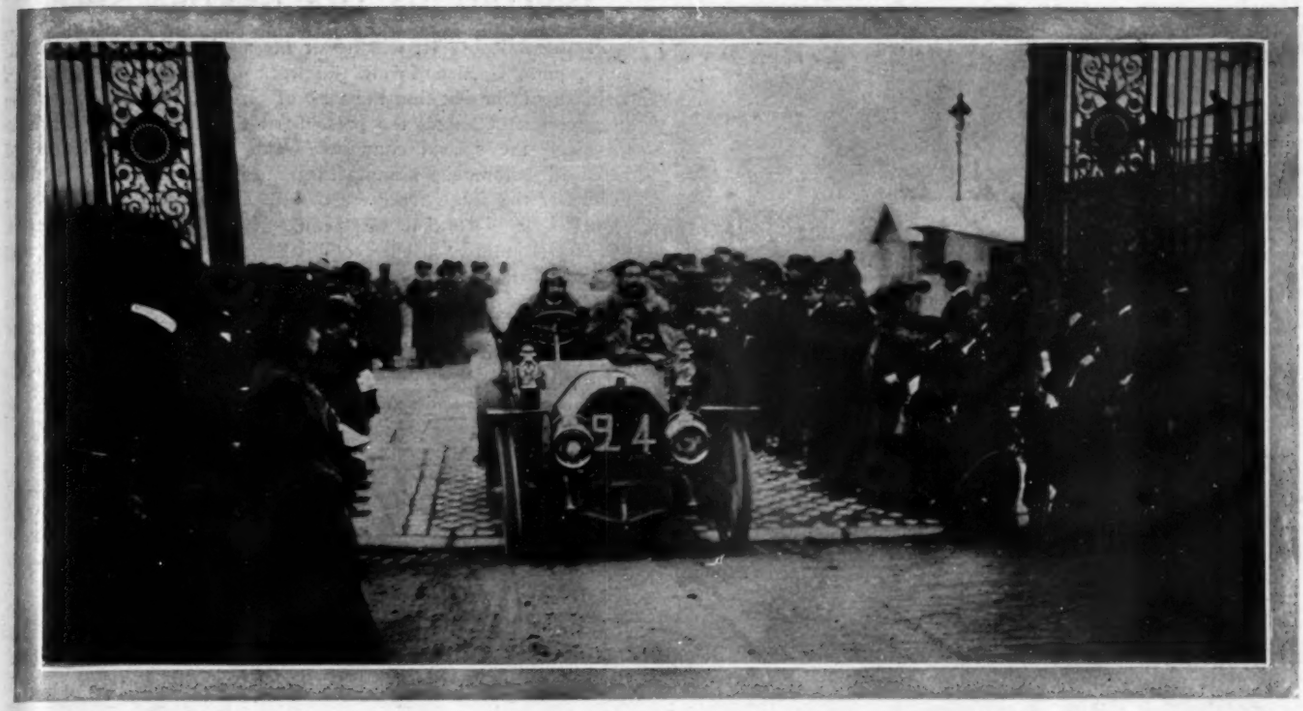
The most luxurious type of car body has its representative in two Darracq-Serpollet cars of tremendous size. One of them has two comfortable couches, sufficiently long to accommodate a tall person, one down each side of the car, rear entrance, and a door opening on to a platform behind driver's seat.

Low-priced popular runabouts selling at less than $1,000 were better represented than ever, mostly by firms having hitherto specialized motorcycles. Serious attention is now being given to this branch of automobiling and some really excellent machines were presented. Unfortunately the Darracq single-cylinder runabouts, which are expected to have a tremendous sale both in France and abroad, were not ready in time for the show.

Only two racing machines were on exhibit, the one with which Szisz won the Grand Prix for the Renault firm and one of the three Darracqs built for the Grand Prix and the Vanderbilt Cup contest. The exhibition contained one six-wheel chassis, built by the French firm of Borderel, and one armored war automobile constructed by Charron, Girardot & Voigt for the Russian government and armed with Hotchkiss quick-firing guns.




DARRACQ



ONE OF THE TWO WESTINGHOUSE CARS WHICH MADE CLEAN SCORES IN THE ENDURANCE RUN.

TOURING COMPETITIONS OF THE SALON

PARIS, Dec. 5.—There was not much apparent connection between the mud-covered autos which entered the Tuilleries Gardens this afternoon and the brilliantly polished, highly varnished cars, carefully swaddled in paper and cloth, which were carried into the Grand Palais a few hundred yards away. Yet they were practically the same machines, only one had passed a fortnight on the road, while the others had spent that interval in the hands of the polisher. Each year the Automobile Club of France organizes some competition during the Salon period. This year it took the form of an endurance run across almost the entire length of France—from Paris to Monte Carlo and return—in eight stages. Only 1907 Salon models were eligible, and it was thought that with the booming at every point en route as well as at the terminus, a big entry would be obtained. Such was not the case, and if De Dion-Bouton, Westinghouse, Bayard-Clément and Decauville had not come forth the competition would have been left in the hands of a few unimportant firms. Despite the atrocious weather, conditions were not difficult for modern machines. Cover 21 miles an hour on each stage, and do all adjustments during running time, were the only orders given. Single cylinder runabouts found it a hard task on some portions of the road, but the big fellows laughed at the test; the Westinghouse pair fixed their own average at 37 miles an hour and stuck to it throughout the run, while many more without any pretence at being flyers fulfilled all the regulations asked with remarkable ease.

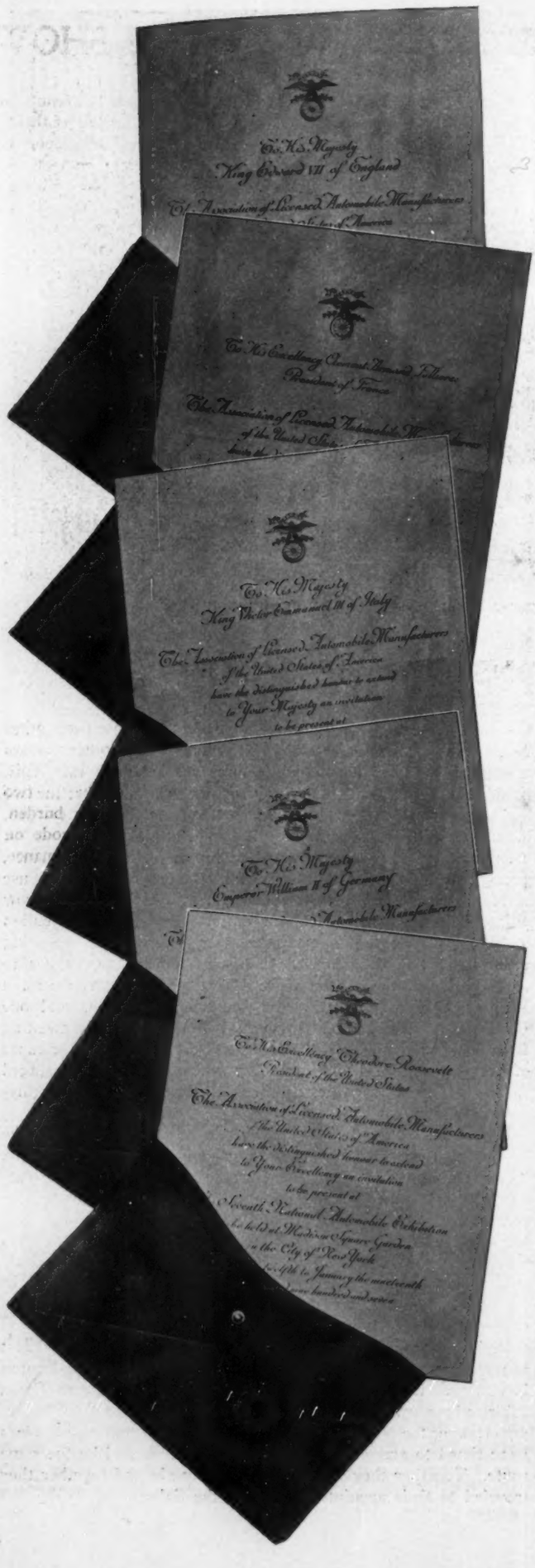
Those terminating with clean sheets were two Westinghouses, three Bayard-Clément, Chenard & Walcker, two Decauvilles, Opel, Boyer, and three De Dion-Boutons, one of which was a single-cylinder runabout. A place of honor now awaits all the competitors in the exhibition hall.

Only Nine Military Vehicles Survived.

While the pleasure cars were running to Monte Carlo, some twenty commercial and military wagons were engaged in a regularity contest between Paris and Marseilles and return. For them the task was not so easy as for the lighter vehicles, for of the twenty starters only nine came back from the 1,200 miles run. Road accidents, defective machinery and other causes accounted for the remainder. There was constant rain, soft, muddy roads, a difficult route, and it is not surprising that the two and four-ton loads proved in some cases too heavy a burden. A military officer, delegated by the War Department, rode on each machine and was instructed to report on its performance, noting particularly its regularity, hill-climbing powers, the use of low gear and handiness in mountain districts and on narrow village streets. The French war office is paying close attention to heavy vehicles, and manufacturers are expecting to do a big business in this department. The cars finishing according to regulation conditions were three Darracq-Serpollet steamers, a Peugeot, a Mors, two De Dion-Boutons, two Orions and one Berliet. When placed on the specially-prepared stands awaiting them in the Grand Palais, the records of the detailed performance of each car will be displayed with it, and the cars will be staged just as they come from the road in sharp contrast with the highly-polished exhibition chassis.

Darracq-Serpollet is the company formed this year by the co-operation of the two well-known gasoline and steam engineers. The machines are built at the Darracq factory at Suresnes according to the plans of their designer, M. Serpollet. Already the company has met with a huge success. One of their most ambitious schemes is to take over the whole of the Paris omnibus service on the expiration of the present lease and substitute steam 'buses entirely for the present horse-drawn vehicles. In the competition just terminated all three Darracq-Serpollet machines finished each stage ahead of all competitors.

Berliet, already famous for touring machines, made its first appearance in heavy wagon competitions; the De Dion-Bouton lost one of its team owing to a collision, and the two Orion vehicles both traveled from the Marseilles factory to Paris before undertaking the official test. Heavy wagons and touring machines were timed to arrive in Paris at the same time and by the same route. Together they went to the weighing-in and together they traveled to their appointed stands in the Salon.



INVITED TO THE GARDEN SHOW.

President Roosevelt will honor the automobile show in Madison Square Garden during the week of January 12-19 with a visit, should he not find the task of directing the administration of government affairs too pressing at that time. That much he promised the special committee sent by the Association of Licensed Automobile Manufacturers to invite him and the ambassadors of the foreign powers to attend the show. He was not requested to officiate at the opening of the show, but evinced an unexpected interest in automobile affairs generally, and expressed himself as newly concerned in them. A number of the ambassadors expressed their willingness to attend in response to the invitation, and a special train will be run from Washington for their benefit. The committee, consisting of George N. Pierce, Alexander Winton, E. R. Thomas, H. H. Franklin, G. M. Studebaker, Col. George Pope and Carleton R. Mabley, returned to New York on Monday last, much gratified over their reception at the Capital during their entire stay there.

The invitations themselves are elaborate Tiffany creations, inclosed in several envelopes, the outer one being of leather, with an ornamental clasp. Besides that to the President, invitations were extended to the rulers and ambassadors of England, France, Germany, Italy, Japan, Austria, Mexico, and Brazil. The invitation to the President was delivered by the committee already named, while those to the ambassadors were subsequently handed to them by a special committee consisting of S. T. Davis, Jr., of the executive committee of the Licensed Association; E. Rand Hollander, of the Importers' Automobile Salon, Inc., and Marcus I. Brock, assistant general manager of the Licensed Association.

During their stay in Washington a banquet was held at the New Willard, at which Secretary Shaw was the chief speaker. He confidently predicted that the motor vehicle would, in time, revolutionize methods of transportation, and, in a measure, take the place of the railroads, beside bringing good roads for the farmer, while the future growth of the industry, as a whole, would doubtless be far greater than could be estimated. Quartermaster-General Charles F. Humphrey gave it as his opinion that the automobile is destined to take the place of the horse and the mule in the army, and that the use of motor vehicles should be recommended for all army posts and military academies. Among the other guests were Herbert Knox Smith, Senators Dick and Latimer, and many members of the Gridiron Club. There were forty present in all, and great interest was shown in the automobile and its future.

BALTIMORE'S JANUARY AUTO SHOW.

BALTIMORE, Dec. 17.—Preparations are now being made for the Baltimore show, which will be held January 19 to 26. The show will be held under the combined efforts of the Automobile Club of Maryland and the local dealers. The place for holding the show has not yet been decided, but it is more than probable that the Fifth Regiment Armory will be obtained, which is the largest building in the South. Twice as many exhibitors are expected to attend this year, and many new features will be introduced. One of the features is to have a lake built in the center of the building for the purpose of exhibiting motor boats. The local show follows the big New York show in Madison Square Garden. A committee of three has been appointed to attend the show in Gotham in the interest of the local show. The committee is composed of J. E. Norwood, Mr. Snowdeal and Mr. Nuesborne.

KANSAS CITY'S FIRST AUTO SHOW.

KANSAS CITY, Mo., Dec. 17.—Kansas City will this season hold its first automobile show in its big Convention Hall, March 4 to 10. The show will be held under the management of the International Automobile Association. Convention Hall has an unobstructed arena 110x185 feet and a seating capacity for 15,000 people. The business office is in the Willis Wood Theater building. The committee is composed of L. W. Shouse, chairman; D. M. Snively, secretary; F. L. Woodward, manager.

HOW THE GARDEN WILL BE DRESSED FOR THE SHOW

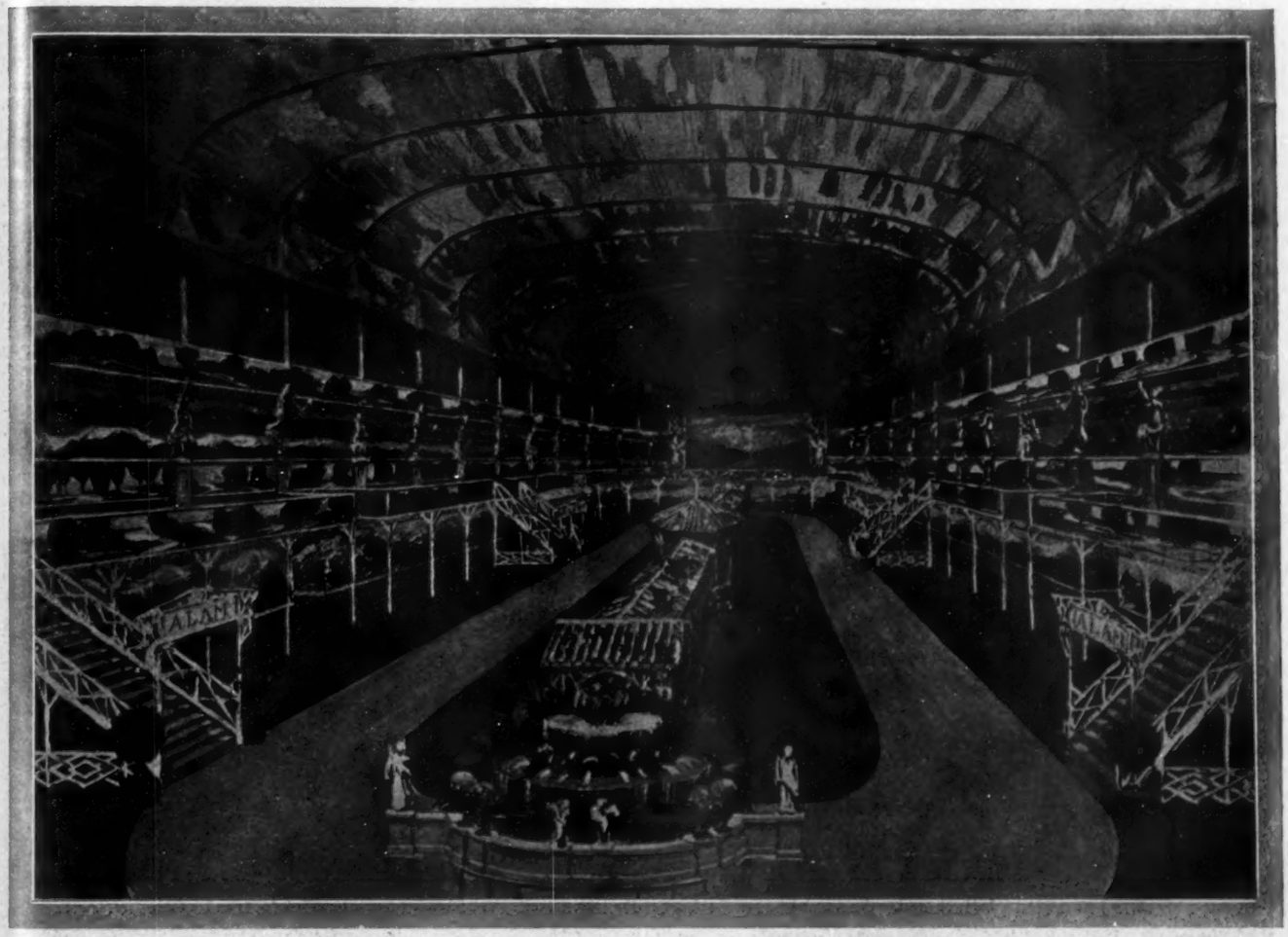
MADISON SQUARE GARDEN will be dressed *a la Suisse* for the January 12-19 seventh annual show, and the decorative scheme is to be the most elaborate of anything ever attempted in this country in connection with an industrial exhibition. Over $50,000 will be expended in preparing the setting for the exhibits, the work being in charge of S. R. Ball. Herewith is the scheme as given for publication by Press Agent Jervis, whose descriptive language can hardly be improved upon:

"The coloring will be vivid, varied, and harmoniously distributed, and some idea of the ensemble may be had by those who can picture a palatial Swiss garden in the late fall or early winter—beneath an amber sky, spangled with pale, silvery stars that blink a good-night to the sinking sun, all the mellow and flaming glories of autumnal foliage are playing hide and seek about rustic arbors, and the coloring is reflected upon pure white statuary and in plashing fountains; the green sward of the garden is delicately flecked in white by the first desultory flakes of a snow flurry, sent to tell of the approach of winter; in the perspective, on all sides, is Alpine scenery, with hamlets snuggling beneath snowy peaks and mountain lakes gleaming in the lingering, refracted rays of the sunset hour.

"Overhead the iron girders of the big show house will be concealed by a canopy of amber hue, studded with 37,000 silver stars. The whole floor will be covered with a specially woven green carpet, with white streaks and dots here and there to carry out the snow motif. The side walls of the main floor and platform will be concealed by paintings designed to perfect the illusion of an Alpine perspective, and at the Fourth avenue end will be a huge canvas, painted by well-known creators of theatrical scenes and curtains. In front of the pillars that support the galleries will be heroic statues on pedestals, eight on each side. Near the Madison avenue entrance will be a great fountain, twenty feet across the base and eight feet in height; it will have three basins and its several jets will be illumined by various colored lights.

"Stretching down through the center of the garden, over the snow-flecked verdure, will be a rustic arbor made of white birch. This will be intertwined with autumn foliage, with vari-colored electric bulbs scintallating among it. The stairways from the floor to the elevated platform also will be of rustic work. Several carloads of white birch were brought from the Adirondacks especially for this work. The central rustic bower is a masterpiece in that it combines the maximum of attractiveness with the minimum exaction upon the valuable floor space.

"The general picture will not be marred by any visible railings. Those of the elevated platform will be concealed by art nouveau paintings, introduced so as not to have too much mountain scenery, and this portion of the work will be further enriched by draperies of wine-colored silk. In all, more than 20,000 yards of draperies will be employed. The demarcation of the spaces of exhibitors will be by means of narrow strips of wooden moulding, finished in forest green. The desks and chairs and all the furniture of the exhibitors, also, will have this tone of forest green.



HUGE AMPHITHEATER OF MADISON SQUARE GARDEN TRANSFORMED INTO A SWISS BOWER FOR COMING AUTOMOBILE SHOW.

"In the restaurant, off the foyer, the same general scheme will be carried out, but in the concert hall there will be a complete departure and in the basement and the rathskeller will be other totally different schemes, so that the visitors may roam about glimpsing new beauties. In the concert hall the scheme will be Persian, with columns, draperies, rugs and panels of oriental design. In the basement the scheme will be delft and white, the walls being covered with delft burlap and the brick pillars with Dutch paintings, while the ceiling will be draped in white. The rathskeller and grotto will be decorated with English paintings and panels of Spanish leather, hand tooled and depicting various scenes. Everywhere the idea of autumn merging into winter will be carried out, but without coldness. The old garden will lose its identity completely in a wealth of warm concealing color."

W. K. VANDERBILT, JR., GOES TO EUROPE.

W. K. Vanderbilt, Jr., president of the Long Island Motor Parkway, member of the A. A. A. Racing Board and donor of the Vanderbilt Cup, has gone to Europe on his annual trip, sailing last week for Cherbourg. Previous to his departure the Motor Parkway directors held a session at which reports of favorable progress seemed to insure a completion of the road in time for the October race. While abroad Mr. Vanderbilt, acting as the representative of the A. A. A., Racing Board, will consult with the officials of the Automobile Club of France and the Automobile Club of Italy in reference to the 1907 race, which undoubtedly will take place as usual in this country. Mr. Vanderbilt will probably remain on the other side until spring.

Hereafter tourists who take cars abroad and bring them back after having repairs made costing ten per cent. of the price of the car will have to pay duty on the full value of the car. This is to discourage the practice of rebuilding cars abroad.

MR. EDGE'S BELIEF IN THE SIX-CYLINDER.

Editor THE AUTOMOBILE:

I have just read in your recent issue the most surprising statement from such a bright business man as Mr. Waldron that I have ever read. At the present time I sell a 45-horsepower four-cylinder Napier, live axle or chain, for £700 for the chassis, and a 40-horsepower six-cylinder for £975 for the chassis. If any would-be customer tries the two cars he invariably buys the six-cylinder, although it is £275 more money.

We have a factory now turning out nearly twenty six-cylinder cars per week and making nothing else. Practically every well-known manufacturer is to-day making a six-cylinder car, because in Europe he cannot sell powerful four-cylinder cars, and I give a list of firms which on November 24 were, to my knowledge, making six-cylinder cars:

Aerial, Austin, Armstrong-Whitworth, Belsize, Berkshire, Bolide, Brooke, Bradburn, Beaufort, Benz, Brown, Britannia, Berliet, Calthorpe, Clément-Bayard, Cottereau, Cochrane, Climax, Daimler, Darracq, De Dion, Doman, De la Buire, Elswick, Frayer-Miller, Franklin, Ford, Fiat, Gladiator, Gobron-Brillie, Gnome, Germain, Humber, Hotchkiss, High Tepsion Co., Hurd & Haggin, Hurst, Horbick, Heron, Hexe, Itala, Iris, Kansas City, Lamb, Leon Bolée, Lege, Lanchester, Mercedes, Minerva, Mors, Maudslay, Martini, Mieusset, English Napier, Spanish Napier, American Napier, American National, English National, Newmobile, Olympia, Orleans, Owen, Panhard, Premier, Protos, Regent, Rolls-Royce, Rossel, Standard, Stevens-Duryea, Simms, Singer, Stoddard-Dayton, Sunbeam, Straker-Squire, Star, Speedwell, Siddeley, Scout, Thornycroft, Thames, Twentieth Century, Vauxhall, Vinot, Vertex, Vulcan, Vici, West, White & Poppe, Yukon.

If Mr. Waldron had looked in our showrooms here he would certainly have found nothing but four-cylinder cars, the reason being that the six-cylinder ones are all sold before they are produced from the factory, but we still have a certain number of four-cylinder cars that we are very anxious to dispose of. I inclose you herewith a photograph showing one of the Napier erecting shops, in which you will see nothing but six-cylinder cars erected.

I do not myself think that 94 firms have started making six-cylinder cars to please me or to merely enable me to say they are copying the Napier principle; they are doing it because they cannot sell their powerful four-cylinder cars. S. F. EDGE.

London, England.

A VIEW IN ONE OF THE NAPIER ERECTING SHOPS SHOWING THE EXTENT OF SIX-CYLINDER ASSEMBLING.

UP-TO-DATE DEVELOPMENT OF THE GARAGE

By HOWARD GREENE.

SO rapid and, from a superficial point of view, so spectacular has been the development of the self-propelled road vehicle from the dream of an inventive imagination to an accomplished fact and a factor in modern life, that public attention has been to a great extent absorbed in watching it and comparatively little notice has been taken of the details of the home of the modern

ONE OF THE UP-TO-DATE BROADWAY ESTABLISHMENTS.

vehicle—the garage. The progress made in the construction and equipment of garages has kept pace with the advance of the automobile, and has even done better—is a little ahead of the demands.

Inconveniences of the Early Days.

Perhaps the most interesting phase of garage development is that which concerns the various appliances which make it possible to handle big, heavy cars with ease and expedition, and by the use of which a comparatively small staff of men can care for a surprisingly large number of cars in a short time. In the old days, when the automobile was still something of a novelty and attracted attention in the streets, the garage usually consisted of a shop on the ground floor, for facilities for lifting cars to a higher floor were rare. Cars were laboriously jacked up and blocked when it was necessary to work underneath—which was pretty frequently—and to turn a car in the small space of a garage meant an almost interminable series of short backward and forward movements or else a run into the street. Cleaning upholstery, pumping up tires, filling tanks, washing bodies and the performance of other work meant the expenditure of a vast amount of time and labor, owing to the lack of special facilities; and while this was not, perhaps, a very serious matter at first, the increasing number of cars in use soon made better arrangements necessary, and American inventive genius promptly came to the fore with everything needed.

When a car is run into a large modern garage it is not, as a rule, allowed to remain on the ground floor unless the building covers a very large area or unless the car is one that is very frequently used and may be wanted at any time. Cars that are not very frequently used are likely to go to an upper floor. The machine is run to the elevator—a huge platform usually moved by electric power—and hoisted to its floor quickly and without fuss. If it is necessary to turn the car, there are turntables sunk in the floor and one man can spin a car around on one of these ball-bearing circular platforms with the greatest ease. A popular arrangement is to have a turntable directly in front of the elevator on each floor, so that the car can always be turned to suit existing conditions. Occasionally a turntable is found fitted into the floor of the elevator. Such improvements have been made in automobile turntables that it is no longer necessary to dig a deep hole to install one; a shallow depression will accommodate the framework and the circular tracks for the balls to run in. Even in shops where there are no turntables it is not necessary to resort to the time-consuming see-sawing method of turning a car. The chauffeur or repair man has at his disposal a pair of little roller trucks that at once convey the impression of huge roller skates. Two of the car wheels are run on these, and the car can then be swung around in any direction, as if it was a piece of furniture mounted on smooth-rolling casters.

Conveniences of the Up-to-Date Establishment.

Washing a car is, at the best, a sloppy and rather unpleasant business; but it is infinitely less so when modern appliances are used than it was when the most that could be expected in the way of facilities was a hose and a sponge. And the washing was usually done in a dark corner, where only an owl could see clearly what was going on. Now when a car is washed it is taken to a well-lighted concrete-floored part of the garage and run under a revolving device from which the hose depends. As the workman works around the car the overhead piping swivels and follows him. He may use a hand sponge, or he may have a sponge fitted to the nozzle of his hose so that a continuous stream of water washes away the particles of grit and dirt and prevents scratching while the sponge is rubbed over the paint. The water runs off the floor through numerous drains; there is no snaky hose distributed over the floor on foot-catching, kinky coils; and the man has every opportunity to do his work well and in comparative comfort. An ingenious device makes it possible to have plenty of light on the car even after sundown. On the revolving washer, overhead, is an electric or gas light, and this revolves with the apparatus and, like the hose, follows the workman around the car.

Compressed air plays a very important rôle in the well-equipped garage. Down in the basement the visitor will perhaps see a buzzing electric motor driving an air pump; this will be idle, perhaps, for a time, and will suddenly start into life for no visible reason, and after gradually slowing down, will stop of its own accord, only to commence another period of spasmodic activity later on. Investigation will show that this is an automatic air system. The pump, driven by the motor, forces air into a receiver or tank from which it is piped to various parts of the garage.

MANAGER H. S. HOUPT HAS AN INVITING PRIVATE OFFICE.

WHERE THE CHAUFFEURS PLEASANTLY KILL TIME WAITING FOR ORDERS.

As air is taken from the receiver the pressure naturally falls, and when a certain point is reached in the downward scale an automatic device switches on the electric current and sets the motor buzzing. The pump works away until the air pressure in the tank is restored to the pre-determined point, when the automatic device again comes into play and cuts off the current.

Compressed Air Devices are Valuable.

Obviously the air thus compressed is used for the inflation of tires; but this is far from being the only use to which it is put. While all compressed air devices that might be used in a garage are not often found in a single establishment, it will be interesting to see what the more important devices are. The tire inflating tubes, with automatic valves that open as soon as they are pressed against the tire valve and close when removed, are familiar not only to automobilists, but to most cyclists, such things having been widely used in the palmy days of the two-wheeler. But it would be a revelation to many to see a man take a hose with a wide, flat nozzle and with a few magic passes blow the dust and dirt off the upholstering of a car—a job that would otherwise entail much brushing, taking time and unnecessarily wearing the covering, while making a far less thorough job. Cars in which air pressure is used for forcing gasoline to the carbureter or lubricating oil to the bearings can have the air pressure raised in a jiffy without the trouble of pumping it up by hand. Pneumatic hoists, though originating in other than automobile shops, are sometimes used in garage repair departments for lifting heavy parts, and pneumatic jacks are also occasionally used. Another application of compressed air that saves much time and labor is the driving of drills and grinders. Not infrequently it is necessary to drill a hole in some part of the car that is not readily accessible. If the hole is a small one the workman may wriggle under the car with a hand drill and do the job; if the hole is too large for this, he may rig up a ratchet hand drill. Under the best conditions, however, hand work must be much slower than drilling with a machine. But to do this it would be necessary to remove the part, perhaps, and carry it to the machine, entailing much loss of time. All this can be avoided by using a portable pneumatic drill which is easily and quickly mounted in the desired position, the air turned on and the hole drilled rapidly and accurately. The machine is nothing but a tiny air motor with suitable gearing, enclosed in a dustproof case and fitted with suitable means for handling and attaching it to the work. Or an emery wheel may be attached to the spindle and small grinding done in places difficult of access in any other way. Instead of using an air motor, however, the same results are often attained by running a flexible shaft from a small portable electric motor or from the regular power shafting, if convenient; or by having the drill or emery wheel mounted directly on or geared to the spindle of an electric motor especially designed for the purpose. In garages where much electric vehicle work is done there are often pneumatic or hydraulic hoists for lifting batteries bodily out of vehicles.

THE MACHINE SHOP ON THE TOP FLOOR IS BOTH WELL EQUIPPED AND LIGHTED.

How the Gasoline Is Stored.

When a car goes into a modern garage and the chauffeur demands gasoline and oil, it is not now the proper thing for these vital fluids to be run from a bunghole into a pail and then slopped into the tanks. As a matter of fact, a garage may dispense hundreds of gallons of gasoline and scores of gallons of lubricating oil without a drop of it being seen. The main supply is deep underground in a big steel tank, at a respectful distance from the building, and it is conveyed to the building through pipes. Conveniently located in the garage is a sort of little closet or cabinet, in which is a pump. The car is, perhaps, run up to the pump and a hose run to the tank opening. The attendant gives the pump a stroke and exactly one gallon of gasoline passes into the tank of the car; another stroke, another gallon, and the pump automatically registers the quantity pumped, though no one sees a drop of it. Of course, if the car cannot be conveniently brought to the tank, the gasoline may be measured in the same way into cans or pails and carried to the car; but this has been greatly improved upon. A steel tank holding, say, fifty gallons is mounted on wheels so it can be easily trundled to any part of the garage, or to the curb outside. On the tank is an automatic pump and from the outlet a hose extends. The tank is filled up from the main tank, and when a car is to

be replenished, is run to the most convenient place and the hose inserted in the tank opening. The portable pump may also be fitted with the self-registering device. Thus there is no slopping over of gasoline and no waste and no mistake as to the quantity given; no opportunity for a customer and a garage employee to hold different ideas as to the quantity of gasoline or oil supplied. Another refinement sometimes introduced is a pipe to convey the vapor in the car tank back to the portable tank or the main tank, as the case may be, thus avoiding the possibility of accumulations of explosive vapors about the garage. In one gasoline system that has been most cleverly worked out no pumping is required, water forced into the main tank at the bottom forcing gasoline out at the top and filling the space that would otherwise be filled with vapor-creating air. The widely differing specific gravities of the two liquids keep them apart very effectually.

A little consideration will convince anyone that a few of these up-to-date appliances will effect an aggregate saving of time that will go a long way toward paying off the hands at the end of the week; and in the best garages a majority of the appliances referred to will be found in constant use. On a busy day there will be an almost constant stream of cars leaving a large garage up to a certain hour, and later an almost equally constant stream of returning machines. The establishment that is not prepared to handle a large number of cars in a short time, both going and coming, will find itself in a sad plight every Saturday, Sunday and holiday when the weather is fine; but to the credit of the garages it must be said that few of them, and none of the more modern ones, are ever caught napping.

When it becomes necessary to get under a car there are the usual pits for workmen, with permanent and portable electric lights; and as gasoline vapor, being heavier than air, is liable to accumulate in the bottoms of these pits, they are often, and should always be, ventilated in some way. In some shops there are special hoists for raising a car from the floor and holding it suspended at any desired height. Then there are trestles upon which the cars may be run over sloping approaches, and special jacks for hoisting all four wheels at once. The familiar pit, however, is the most commonly used arrangement for this purpose. Occasionally a car has to be hoisted up endwise or sidewise when hand-operated chain hoists come into play. These hoists are often used when it is desired to make a plan photograph of a chassis. It is but to be expected that in a smart automobile repair shop there will be portable cranes, trolley hoists and every modern convenience for the rapid handling of parts that are too heavy for convenient manual handling.

Careful Precautions Against Fire.

Every garage worthy of the name is more or less carefully protected against the danger of fire, and in the more modern and expensive buildings the precautions taken seem almost extravagant. For instance, one of the large metropolitan garages is built entirely of materials that are absolutely fireproof, with the exception, of course, of a small amount of necessary interior woodwork; and even this is fireproofed. Fire extinguishers, buckets of water and buckets of sand are lavishly distributed on every floor. But note the system of handling the large quantities of gasoline and oil used. There is not a drop of gasoline or oil in the building proper except in the tanks of cars. The gasoline, in thousand-gallon steel tanks, is buried in solid concrete under the floor of a vault *outside* of the building and separated from the basement by heavy iron doors that close automatically in thick stone walls. Heavy piping leads to a second vault on the floor above, also outside of the building, and here are the gasoline pumps and the kerosene pumps piped from tanks also in the lower vault. A second pump room contains the apparatus for drawing various kinds of lubricating oil from their respective tanks, which stand on the floor under which the gasoline tanks are buried. All these rooms are separated from each other and from the building by massive stone walls and heavy iron doors, and only one man, excepting officers and foremen, is permitted to enter the oil and gasoline vaults; he is the oil man and delivers the liquids in his charge only on properly signed orders. The pipes for filling the tanks are carried underground, outside the building, to filling valves in the pavement, so that the oil is run in direct from the tank wagons. The steam-heating plant is also isolated from the building and, with its coal bunkers, occupies its own underground space. It seems almost a joke to find finally that a building of this kind is liberally equipped with fire-

THE HOUPT GARAGE GROUND FLOOR IS SPACIOUS, KEPT CLEAN, AND WITHAL IS PRACTICALLY FIREPROOF.

escapes reached through very wide and very easily opened doors. The relations existing between the garage and its patrons are of growing importance, and the garage manager is usually anxious to do all he can to give the best possible service. In this connection may be mentioned a check kept in one big New York garage—and, in various forms. in other garages—on the movements of cars. Every car that goes out must pass the doorman, and until the doorman lowers the chain across the door there is no exit. Every car has a card in a special rack, and beside the rack is a time-clock and stamp. When a car goes out the doorman takes the card belonging to that car and stamps on it the time of going out, and when it comes in he again stamps the time. The owner of the car has free access to his cards, and can thus tell at a glance what his car has been doing. The chauffeur with a propensity for making free with his employer's property is thus held in check by the knowledge that his lawless excursions are as plainly recorded as his legitimate trips.

In the matter of keeping track of the time occupied in making repairs a complete system is also used. Every order for repairs or other work on a car must be signed by the chauffeur, so that misunderstanding on this score is impossible. Then the man who does the work fills out a special blank with his name, the number of the job and a description of the work performed; when he starts the work he uses a time-stamp and thus records on the blank the time he started, and he does the same thing on the same blank when he finishes. Thus there is in a single blank a record of the number of the job, the name of the workman, the exact work he performed and the material supplied, and the exact time consumed in doing the work. Everything is in black and white and everything is signed by the men directly interested.

There is a garage in New York where the chauffeurs off duty are exceedingly well taken care of. In the rooms devoted to their creature comforts are not only comfortable chairs and lounges, lavatories and shower baths, but billiard and pool tables and a *barber* with his chair and complete outfit. This is not only a great convenience, not to say a luxury, to many of the chauffeurs, but is an obvious suggestion to every man to look to his personal appearance, and leaves no excuse for not doing so.

DENATURED ALCOHOL FROM CURRANTS.

Consul-General George Horton writes from Athens that the Greek Wine and Spirits Company, organized for the purpose of utilizing and consuming the Corinthian currants, the principal agricultural product of Greece, is making satisfactory progress in its efforts to dispose of crude alcohol distilled from currants.

They have opened a permanent exhibition in Athens, where their lamps, stoves, etc., may be seen and purchased, and they have established depots of denatured alcohol at many convenient points in Athens and other parts of Greece. The alcohol is sold in tins of 5 okes and up, at 80 lepta the oke. (One oke equal to 0.3513 gallon; $1 equal to 5.5 drachmas; 100 leptas equal 1 drachma.) A portable heating stove which they have on exhibition, which really throws out enough heat to warm a room 12 by 24 feet, consumes about 1 1-2 okes in twelve hours. Lamps of from 24 to 32 candlepower can be kept lighted at an expense of from 4 to 6 lepta per hour. The company has stock lamps of from 12 to 1,500 candlepower. There has been no opportunity to put the portable stoves to a practical test as yet, as the supply has only recently been received and the cold weather has not yet come on. The lamps are being sold, however, and are giving great satisfaction. They are fitted with mantles and give an extremely bright light.

A recent editorial in *"l'Economiste d'Orient"* predicts that denatured alcohol will take the place of petroleum for lighting purposes in Greece, rather than gas, electricity, gasoline, or acetylene, the use of which is confined to the principal cities. The same editorial calls attention to the fact that the tax on petroleum constitutes one of the principal sources of revenue for the payment of the public debt.

TOURING EQUIPMENT OF A TOURING CAR.

By JOHN W. FEW, Jr.

"This year," said an auto friend of mine the other day, "I'm going to get a touring car, as I expect to be able to take more time from business to enjoy the pleasures of long tours." This sounded good to me, as it recalled some very delightful trips I enjoyed last year, but it recalled to my mind the one lack in touring cars in general want of storing space. If there is a misnomer in the automobile world it is that of the touring car, with its unfortunate lack of touring facilities. True, as applied to power, capabilities of the engine, strength of frame, and all-around ability, the car is all right. But to turn a present day touring car over to the purchaser with the space under the rear seat as the limitation of storing facilities is coming far short of the real meaning of the "touring car." Several manufacturers, appreciating the necessities of the case, have added here and there a receptacle for baggage or other necessary articles, but it is doubtful if any designer has put the amount of thought on this phase of the general car demanded by its importance. It is an odd fact that the limousine cars, which are not built for extensive touring, are much better equipped for storing baggage and the other things necessary for the comfort of the tourists.

Every little space in a touring car body should be utilized as a space for storing articles. I saw a car at Atlantic City last year which had come from Pittsburg, carrying four people. They had gone to a hotel, leaving the "fixings" of the machine in the tonneau. It was awful. Robes, rainproof coats, goggles, suitcases, maps, caps, oil cans, rope, and a medley of other articles, all almost absolutely necessary for comfort, piled in heaps. And it wasn't carelessness, either—no place for storage. It was a big, roomy car, too, capable of going anywhere. The space under the front seat, a valuable location too generally occupied by the gasoline tank, should be reserved for storing purposes, accommotating the tanks elsewhere. The upholstery on the sides of the tonneau extend in some automobiles six or eight inches in front of the seats. This thickness would accommodate many small articles if made into pockets.

It is a favorite practice to place boxes on each running board. Frequently one contains tools and the other dry or storage batteries. The latter could be placed under the floor in the front part of the car between the frame and the speed change box. This could be made a firm and convenient location. In many cars the curved backs of the individual front seats form quite an offset in the rear. Provisions to use this space would afford storage room for maps, goggles, or guide books. A foot rest made in the form of a long narrow and somewhat shallow trunk has been utilized by some manufacturers to receive the rubber lap robes which complete the machine's outfit—a good idea.

The long but shallow space under the body inside the running board could be made into convenient tool boxes, the fronts opening down flat on the running board, would make a convenient place to hold tools of all descriptions. A small vise attached to the front would be a much appreciated tool in small repairs, sometimes necessary on the road.

These and many more spaces will doubtless be used eventually by the wideawake maker, who will come more and more to learn the importance of convenience. The increasing efficiency of the engines gives owners more opportunities to turn their attention to other things needful to the complete car for touring purposes.

When once this question receives the attention it deserves many more places at present overlooked will be found where little drawers, boxes, cupboard or other receptacle can be incorporated in the body. The time will come when the successful touring car —the real article, complete in every particular—will be the machine that not only gets there, but does it with the least trouble and with the most complete "traveling or touring" comfort of the passengers.

The Recent Olympia Show in London was attended by 196,543 people, an increase of 40,732 over the attendance of 1905.

REMEDIES FOR ROADSIDE DIFFICULTIES

THAT oft-repeated slogan of the small boy and the carping rural critic, "Get a horse," represents a classical bit of advice that may sometimes be followed to advantage in a manner not intended by its originator. In other words, when endless "winding up" has failed to bring a response from the motor and the most painstaking investigation does not reveal any apparent cause, get a horse. Not to be towed to the nearest garage, but to supply an incentive that will frequently result in restarting the motor. The speed or other qualifications of the steed are not material; if he can get the car under way and pull it a few rods, that will be all that is required of him. When he has traveled about fifty feet and has the car rolling so that it has acquired a little momentum, place the change speed lever in the direct drive position and gently nurse the clutch into engagement, being prepared at the same time to withdraw it again quickly in order not to annihilate the horse. If, as has been supposed, everything is really in order and that nothing but some alleged cussedness on the part of the motor has been responsible, it will start almost without fail, and if the clutch is withdrawn when it should be there will be no evil results. The explanation is simple and may be traced to two or three different causes, all of which center in the carbureter. The position of the float on its spindle may have become disturbed, lowering the level of the fuel in the float chamber to a point where it is impossible to raise gasoline out of the nozzle with the small amount of suction necessarily obtainable by "winding"; or an obstruction may have lodged in the nozzle which will not yield to hand treatment at the crank. By turning the motor over in the manner referred to a powerful amount of suction is exerted on the spray nozzle, raising the fuel in one case and dislodging the obstruction in the other. Even when the trouble cannot subsequently be traced to this or a similar cause, starting with a tow-line will be found efficacious. If the car is on a down grade, towing is unnecessary.

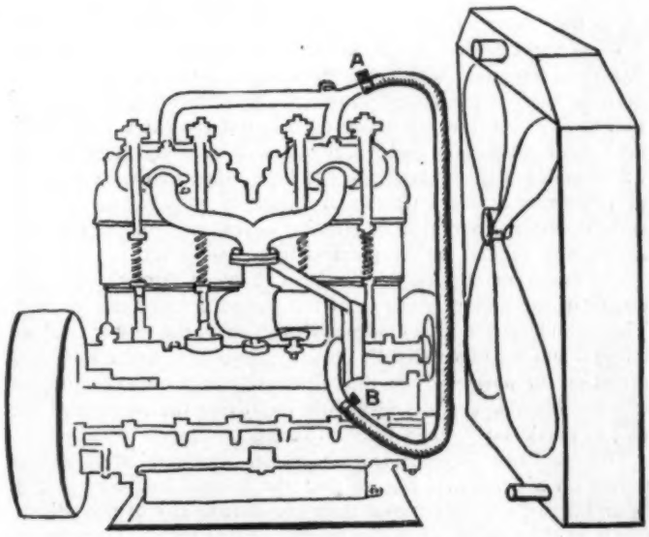
How Not to Leave a Car Standing.

Next to the tales of accidentally burning the car that are becoming so increasingly numerous, mishaps arising from leaving the gears in mesh when it is standing are coming to form a class of their own almost equally important as well as equally unnecessary. The individual who "didn't know it was loaded" is always with us, and the car left standing at the curb with its motor humming softly and nothing but the emergency brake connection holding the clutch out of engagement is as shining a mark for him as the disused gun. The power of doing damage locked up in either does not differ greatly. To cite but one or two instances, there may be recalled the case of the man who left his car in this condition in an alleyway, facing a blank brick wall. His two young boys began to play about the car, and while one of them stood in front of the radiator the other released the emergency brake lever. The car shot ahead, picking up the other boy on the end of one of the dumb irons, and crushed him against the wall. The car held him fast for several minutes and he was dead before he could be released.

In the second case an agent's driver left a car this way at the curb facing one belonging to another agent and which stood about fifty feet away. One of the usual type of hangers-on about the garage began to monkey with the side levers and before he realized what he had done the car started off at a good pace down the avenue. It brought up against the second car with a crash and the resulting damage led to legal proceedings in which the plaintiff was worsted owing to the non-liability of the defendant for the acts of the irresponsible person who was the moving cause of the damage. The moral is simple. In this day of reliable and easily started motors there is every reason for bringing the motor to a stop every time the driver has occasion to leave his seat, if it be only for five minutes. Attempting to get under way from a standstill on the high gear is apt to stall the motor in any but skilled hands, and at best is calculated to strain it, so that dropping to first speed is a necessary preliminary to starting. Thus time is saved by leaving the lever in the neutral position when stopping. If this precaution and that of stopping the motor were universally followed there would be no more tales of "runaway automobiles" to grace the columns of the dailies and add to the list of casualties.

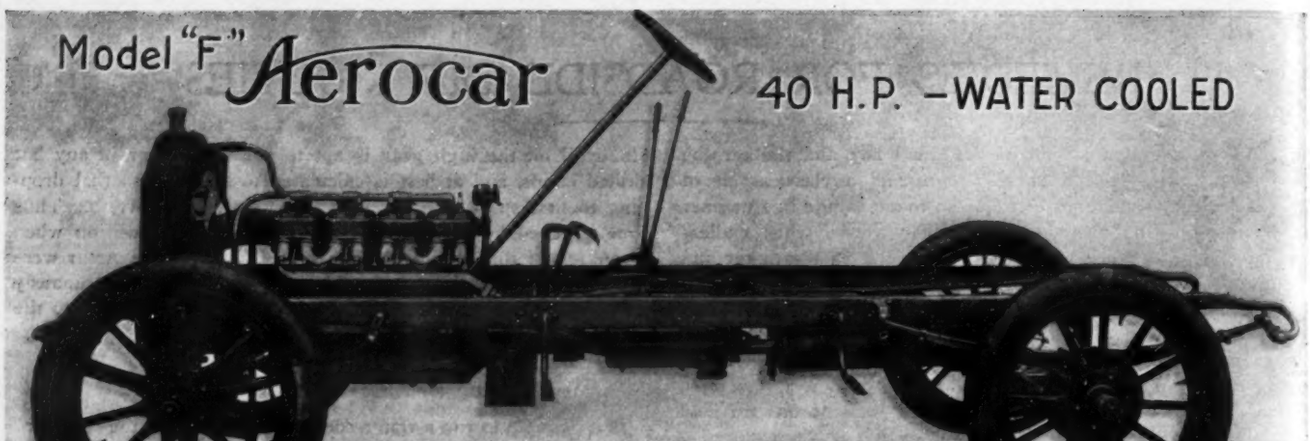
Running an Auto Without the Radiator.

Is it possible to run a water-cooled engine without the radiator? The question is one that will doubtless be answered in the negative by nine drivers out of ten. "It can't be done," will probably represent the consensus of opinion. Without going into the theoretical whys and wherefores of the problem, it may be stated that



HOW THE CONNECTIONS ARE MADE.

such an expedient is not alone possible, but practical as well. It constitutes a wrinkle that the resourceful driver may add to his list, as it may stand him in good stead. The only requisite is a three or four-foot length of hose—something that should always be carried along for renewals, and a few spare compression couplings such as are used for making hose fast to plain metal pipes. When the radiator has been placed out of commission from one cause or another, disconnect it from the pump and hot water return and substitute the length of hose as a connecting link in the manner shown by the accompanying sketch. Connect the pump end first, holding the hose pipe vertically, pour water into its upper end until it overflows, thus making sure that the water jackets are full. Then connect the upper end of the hose to the hot water outlet and the new circulating system will be complete. As the amount of water necessary to the adequate cooling of the motor has been reduced to anywhere from one-sixth to one-tenth, according to the relative capacity of the jackets and the radiator, the engine cannot be run up to full load for any length of time, but by nursing it along, cutting out the engine wherever possible to coast, and renewing the water every few miles where the going is adverse, a long distance may be covered without the assistance of the radiator. The scheme will naturally work far better on some motors than others owing to the difference in the volume of water carried by the jackets as well as to the allowance made for circulation about the valve pockets and head, but there is probably no well-designed water-cooled motor on which it is not feasible when properly carried out.



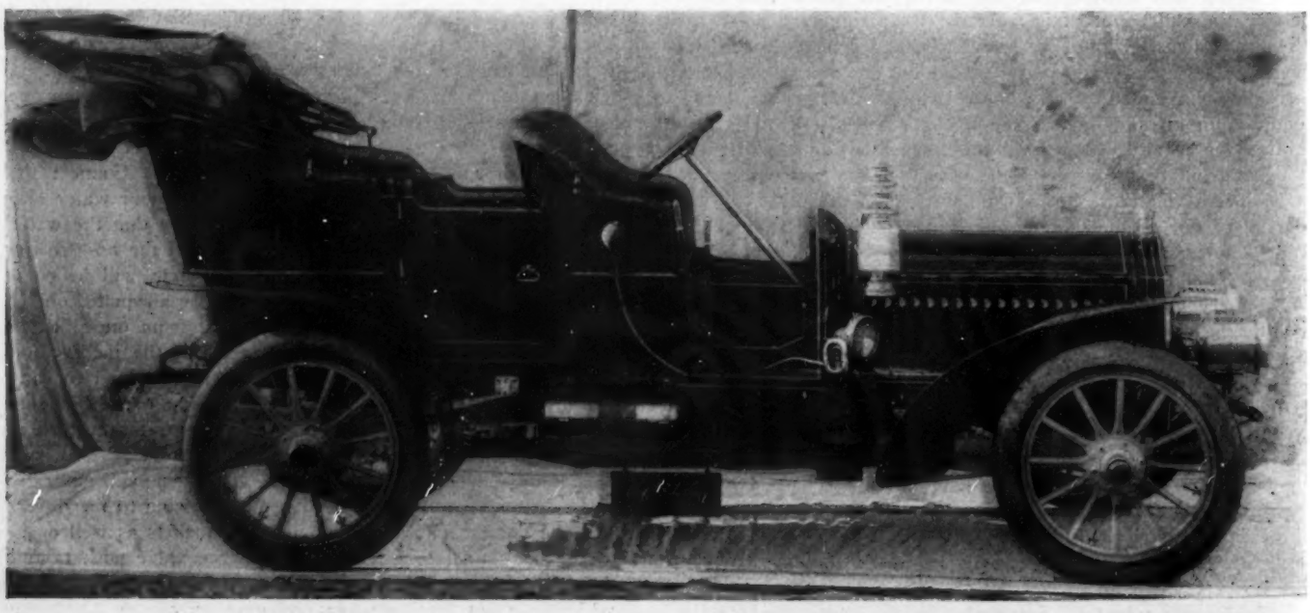
AS the leader of its line for 1907, the Aerocar Company has brought forth a water-cooled type designed on modern and attractive lines and which was uncovered to the public view for the first time at the recent show. In supplementing the already well-known Aerocar that made its début at the show held under the same auspices a year previous with one equipped with a water-cooled engine advantage has been taken of the very latest developments in every feature of design of both engine and car and the result is a vehicle of pleasing appearance equipped with a simple and reliable power plant of great efficiency.

The latest current practice has been followed throughout in the design of the motor, which is of the standard four-cylinder type. The cylinders are cast independently with the water jackets integral and are offset slightly on the crankcase in order to reduce thrust on the power stroke, thus decreasing friction and vibration to a considerable extent and greatly improving the running of the motor, particularly when heavily loaded.

The crankcase is made from a special aluminum alloy and is parted on a horizontal line so that the bottom half acts merely as an oil pan and its removal does not disturb any of the adjustments of the engine, all of the bearings being seated in the upper half, which also carries the transverse supporting arms bolted to four points on the frame. The valves are all placed on one side of the motor and operated from a single camshaft made in one piece with all the cams integral, so that there is no possibility of their getting out of adjustment. The valves themselves are of unusually large diameter, thus admitting and exhausting the charge very rapidly with a minimum lift, which makes for very easy and silent running. The camshaft is also offset and is completely inclosed in the crankcase, making it easy to lubricate. The valve lifts are of hardened steel and bronze and are fitted with wide rollers. An original design has been employed in the construction of the manifolds permitting of their ready removal merely by loosening four nuts.

A tubular radiator of attractive design so supported as to be proof against wrenching of the frame and a bronze gear-driven gear pump constitute the essentials of the circulating system, which is supplemented by an aluminum fan run by belt from the forward end of the crankshaft.

The first step in the transmission consists of a new and improved form of multiple-disk clutch. There are fourteen disks, alternating bronze and steel with small clearance, and they are held from turning by four substantial bolts let into recesses on their edges, the whole running in oil. A sliding pinion type of change-speed gear running on nickel steel shafts mounted on roller bearings and giving three speeds and reverse provides the next step, while the last is a propeller shaft. The body lines are attractive and comfortable, while the entire design of the car lends itself to smooth and easy riding. All on, the car weighs 2,500 pounds and lists at $2,750.



LETTERS INTERESTING AND INSTRUCTIVE

The Adjusting of a Connecting-Rod Bearing.

Editor THE AUTOMOBILE:

[505.]—I have noticed a pound in my engine for some time, which I attribute to looseness in the connecting-rod bearings. Could you advise me through your paper as to the best way to correct this? I have tightened the lock nut which holds the crankpin as much as I can without binding, and I think that the only way to remedy my trouble is to put some copper shims over the bearings. The connecting rod has two bearings, one on each side of the crankpin, which are held in place by two dowels. The bearings are set on the crankpin parallel with the running gear. Should I put a piece of shim over each bearing or only over one? Should I put the shim between the bearing and the crankpin, or between the bearing and the dowels? And, lastly, should I cut the shim just the size of the bearing or larger? If the latter, about how much?

South Nyack, N. Y. A SUBSCRIBER.

The proper way to adjust the connecting-rod bearing of the plain type is to use shims as you describe. We assume from your reference to "two bearings" that the bearing is of the usual split type, in which case it can be adjusted by placing a shim under either or both halves of the bearing, according to where most of the wear seems to be. Placing all of the adjustment on one or the other bearing will raise or lower the piston, unless the wear is proportionate, so it will take some careful investigation into the conditions to avoid incorrect adjustment. With many bearings of this type shims are used between the two halves of the bearing, and if any of these are present the removal of one or more may effect the desired adjustment. Cut the shims just the size of the bearing, so as to give full support to all parts of it, unless extensions are obviously necessary on the shims to hold them in place. After you have effected the adjustment, it probably will be necessary to file and scrape the bearing surfaces to a close fit around the crankpin.

If it is necessary to scrape the bearing, an excellent tool for the purpose can be made out of a medium-sized, worn-out, half-round file. Grind the file all over to remove the teeth, making the edges smooth and fairly sharp. Go at the job carefully, for it is a rather delicate operation for one unaccustomed to scraping.

Using Alcohol in Gasoline Engines.

Editor THE AUTOMOBILE:

[506.]—Will you please tell me if the alcohol engine will be different from a gasoline engine, except in the matter of the carbureter? Can the gasoline engine be converted to an alcohol engine by merely changing carbureters? Is there more power in a gasoline engine, 5 x 5 inches, than in an alcohol engine of the same size? Will you please answer these questions for me at the earliest time, and oblige? DR. J. W. NEBLETT.

Riverside, Cal.

Almost any well-made gasoline engine can be made to run on alcohol, but results secured in this manner are hardly as satisfactory as are secured with a specially-designed alcohol motor. This is chiefly because higher compression is desirable, but also involves some considerations in valve design, determination of piston speed, proportioning the bore and stroke, etc. To convert a gasoline engine into an alcohol engine, the simplest way is to provide means of heating the carbureter thoroughly, so that evaporation will be complete, besides which a plate should be screwed against the cylinder head, to reduce the compression space, and thus increase the pressure. Alcohol has less heat units than gasoline for the given bulk or weight, but practically it is found possible under certain conditions to utilize the alcohol more efficiently, so that its actual value as compared with that of gasoline is higher than would be inferred from the purely theoretical considerations. One of the most serious objections to the alcohol motor is that more or less acetic acid is almost certain to be produced as a by-product of the combustion, with the effect that the exhaust valve and other parts are badly corroded by this acid.

Some Questions on the Two-Cycle Engine.

Editor THE AUTOMOBILE:

[507.]—I would like to ask a few questions in regard to a two-cycle engine. I wish to build an automobile and have thought of putting in a double-cylinder, two-cycle engine. First, will all two-cycle engines fire back, and where does the backfiring occur; is it the charge just entering the cylinder, and does it occur in the cylinder only or does it also occur in the crankcase? Is there any way to avoid the backfiring? Are there any two-cycle engines made that have a valve at the inlet port where the charge enters the cylinder, and is it proper to keep lubrication oil in the crankcase, and can the crankcase be built too small so as to throw too much mixture in the cylinder when the inlet port opens, and thus cause backfiring, and is a two-cycle engine known to give more power for its weight than a four-cycle? I have had a good deal of experience with four-cycle engines, but very little with two-cycle, and probably you can help me out. WM. FAHRENBRINK.

Brighton, Col.

Two-cycle engines are becoming more and more efficient and serviceable with improved design, and it is the belief of many that they are to supplant the four-cycle engine at some time in the future. However this may be, there is no doubt but what all but the very best makes of present-day types of two-cycle engines are more or less prone to backfiring, especially if the engine is overheated, the mixture too lean, or any detail of the construction not what it should be. Backfiring is due to an explosion of the mixture contained in the crankcase before it enters, or while it is entering the cylinder. With the simplest possible construction, of an open bypass extending from the cylinder to the crank chamber, it may happen because of a failure of the exhaust port to relieve the cylinder quickly at the end of the explosion stroke, with the result that hot gases are blown into the incoming mixture, igniting them. Unduly high crankcase compression also may cause backfiring, because the charge may force its way into the cylinder before the exhaust is complete enough to avoid ignition of the fresh charge. In many engines a piece of fine-mesh gauze is placed in the bypass to prevent backfiring, it acting on the well-known safety-lamp principle, which depends on the fact that flame in combustible gases will not pass through fine gauze. The objection to this scheme is that from continued contact with hot gases the gauze may become red hot, in which case it will ignite the gas on the lower side of it. The opinion seems to be gaining ground among engineers of standing that two-cycle engines should have valves, and no ports, and a number have been built with a valve placed as you describe. Lubricating oil is commonly present in the crankcases of two-cycle engines to a slight extent, but splash lubrication in the sense that it is employed on four-cycle engines does not seem to be widely approved. It is much more likely that the crankcase pressure will be too low rather than too high for speed, and since the displacement of the downwardly-moving piston can in no case be more even equal to a cylinderful, there is no danger of throwing too much mixture into the cylinder, though if there were it would be a positive advantage. A two-cycle engine is usually said to give at most about fifty per cent. more power than a four-cycle engine of similar dimensions, so it is the lighter. Possibly some of our readers can give more specific information on some of the points you cover.

Who Can Help Out on This?

Editor THE AUTOMOBILE:

[508.]—The celluloid windows on the side curtains of my automobile, as well as the celluloid front, have been cut and scratched and generally blotched by the action of sand and dust rubbing on the celluloid. Do you know any preparation that will remove such blemishes from windows? An early reply will be greatly appreciated. SAMUEL C. SMITH.

Hollidaysburg, Pa.

We know of no preparation that will renew the polish on scratched or marred transparent celluloid, so are unable to give

you any definite information. Celluloid is generally understood to be a combination of gun cotton and camphor, so it does not lend itself to polishing or cleaning as does glass. At temperatures slightly above that of boiling water it is plastic, and can be given a very high finish by rolling between polished steel rolls. It is soluble, or partly soluble, in acetone and other liquids, and by the use of these pieces of it can be cemented together. It is possible that some liquid solvent could be rubbed over the surface with the effect of smoothing it up, as is sometimes done by furniture finishers in a similar manner, by the application of alcohol to varnish. Perhaps some of our readers can help you out more definitely, or perhaps the Celluloid Company, of 30 Washington place, New York City, will tell you just what to do. Sheet celluloid such as is used in automobile curtains is not very expensive, so the best solution of your difficulty might be replacement.

Factors of Safety in Automobile Work.

Editor THE AUTOMOBILE:

[509.]—Will you please explain in your journal the exact meaning of the term "factor of safety," which I often find mentioned in engineering articles? What I cannot understand is that if a material has a certain strength, it cannot be used in proportions simply sufficient to resist a corresponding strain, yet the need for multiplying the theoretically required amount by the "factor of safety" seems to be generally conceded. GEORGE STENSON.

Richmond, Va.

As a matter of plain fact, the "factor of safety" is a relic of an earlier engineering period, and is being rapidly reduced or eliminated by modern engineers. What it really amounts to is an extra safeguard against trouble likely to occur from inaccurate figuring or materials not up to standard. If a column, for instance, is made five times as strong as is theoretically necessary to support the maximum load that ever may come upon it, it simply means that the engineer is not absolutely sure about the maximum load or the strength of the column. In the field of automobile engineering an important lesson exists to-day for workers in every other branch of engineering, in that factors of safety are shaved closer than ever has been considered good practice elsewhere. With further progress in engineering, it is reasonable to suppose that a point may be reached where all parts will be perfectly proportioned and of the correct material to sustain the given maximum stress, in which case the "factor of safety" will become practically obsolete.

CONCERNING INLET VALVES.

Editor THE AUTOMOBILE:

[510.]—In the issue of November 29, letter No. 483, Fred Fadum of Baltimore, Md., asks for information concerning "inlet valves"; whether the mechanically opened or the automatically opened is better. On slow speed engines, that is, those running three hundred r.p.m. or less, the automatic inlet valve will perform all that is required of it in a satisfactory manner, and the slow speed engines are invariably fixed speed, that is, run on a governor, and the better the governor, the better for the automatic valve. It will be readily seen that the spring must be stiff enough to close the valve immediately at the close of the suction stroke, or some of the gas would be crowded back before the valve closed, which would mean a loss of power; while, on the other hand, the spring must be weak enough, so that the valve will open closely following the commencement of the intake stroke, in order to get a full charge. If the spring were too stiff, the valve would not open till the piston was part way back and toward its fastest traveling point, then there would not be time to get a full charge in the cylinder. Without this, good work could not be expected, so of course to get the best results one must set the spring to fit the speed of the engine, and allowance must be made for varying conditions, such as leakage about the piston rings or other causes of lost compression.

Now look at it from the manufacturer's standpoint: it costs a few dollars more to put on the apparatus to mechanically open the valve, and if the engine will perform its functions automatically and give satisfaction, so much the better, as there is that much less for the attendant to look after. Concerning the changeable speed engine, it is not impossible to run an engine from one hundred to one thousand revolutions a minute, but the changeable speed engines are mostly "Auto" engines, and it is plain to me that a spring on an intake valve cannot be set to do good work on that range of speed. If the spring is set for the first speed, the engine will run upon that, but it will not do much work as the spring will not close the valve quickly enough to hold all the intaken charge; then if we set the spring stiff enough to close readily on the high speed, the engine will more than likely go back on you if the speed runs down. If the spring is too stiff, the cylinder will draw air and leak around the piston as well as through the valve, and allowance must be made for cylinder vacuum also. Designers have learned that the changeable speed engine or the high speed engine work far better with the mechanically opened intake valve, which is a positive opener at the right time, and will not pound quite so hard at the close, while the automatically opened intake valve will hit hard under a stiff spring when it closes, and is liable to stick and work erratically. L. C. GREENE.

West Branch, Ia.

SCHOOLING THE AUTOMOBILE USER.

Editor THE AUTOMOBILE:

[511.]—It may interest you to hear a little something of what we are doing out here in the Northwest. We have always found that users of automobiles gradually become somewhat familiar with their machines, but, as a whole, do not understand the adjustments of the different parts, especially the little things that most frequently cause trouble and delays. We have accordingly thought it would be a very good thing to school such users of the automobile in the proper functions of the various parts of their machines, taking one part at a time and covering the subject thoroughly. We therefore decided this winter to start what might be called a school, giving two evenings a month to practical demonstrations with a car and its various component parts, so as to make users familiar with every one of them, as well as the relation they bear to the other parts of the machine.

The people have taken very kindly to the scheme, as we had an attendance of almost a hundred Maxwell owners at our first meeting, held on the 6th inst., and think that there will probably be quite a few more than this at the remainder of our meetings during the winter. So far as the writer knows, the same scheme has not been tried by any other dealer so far, but we have no patent rights on it, and we believe that if all the dealers in the country would take up something of this kind it would save them a great deal of time during their busiest season in making small adjustments on machines sold, as well as avoiding the annoyance of constantly telling their customers how to take care of their cars. This, coupled with a desire to make automobiles more satisfactory to those who use them, as well as to create a greater interest in the automobile generally, has been our sole aim in doing it. Two nights a month are not much to devote to something of this kind, particularly as the winter months are not really busy ones, and we believe the good feeling created in this way will more than pay for the expense. We have been successful in putting out a very large number of Maxwell cars in Minneapolis and the Northwest during the past two years. A. F. CHASE & CO.

Minneapolis, Minn.

AN OHIO MAN ON SCARE-HEADING ACCIDENTS.

Editor THE AUTOMOBILE:

[512.]—It seems to me that there should be some concerted action among the owners of automobiles against the unreasonable howl and cry against automobiles on the streets and in the country. If a few of the owners in each of the towns around would "bump" the city editors of their newspapers, I am of the opinion that many of the impositions heaped upon automobiles and their owners would disappear.

Ordinarily a runaway, even with disastrous results, will get a newspaper notice of about three lines or no recognition at all in the daily press. If an automobile tire blows up, and should happen to scare a nervous woman in the next block, the incident would be "worthy" of a half-column notice, with about three-quarters of the space devoted to comments on the carelessness and lack of judgment of the driver.

I own and run a White Steamer, and the nearest case to an accident I have had was a drunken man falling in front of my machine, so it was necessary for me to stop and get him out of the way before I could proceed. A. D. THOMAS.

Youngstown, O.

INFORMATION AS TO BUILDING GARAGE.

Editor THE AUTOMOBILE:

[513.]—I intend to build for a client a garage in the White Mountains, to accommodate four automobiles, and would like to get all the information possible as to the most up-to-date equipment, etc. I thank you in advance for any information which you may give me. H. VOM HOLST, Architect.

643 Rookery Building, Chicago, Ill.

THE 1907 MATHESON WILL HAVE TWO CHASSIS, ONE OF 35 H.P. AND ANOTHER OF 50 H.P.

LIKE most automobile makers whose cars have been on the market for years and have stood the test of time and service so far as their main features—their distinctive characteristics—are concerned, the Matheson Motor Car Company, of Wilkes-Barre, Pa., has made few changes in the mechanical make-up of its 1907 models, and what changes have been made are in details. There will be two chassis, one of 35 horsepower and the other of 50 horsepower, instead of 40 horsepower and 60 horsepower, as in 1906. Four different styles of body may be fitted to either chassis—runabout, regular touring body, landaulet and limousine. The Matheson company has always believed in large wheels, and 36-inch wheels are found on both the 1907 machines.

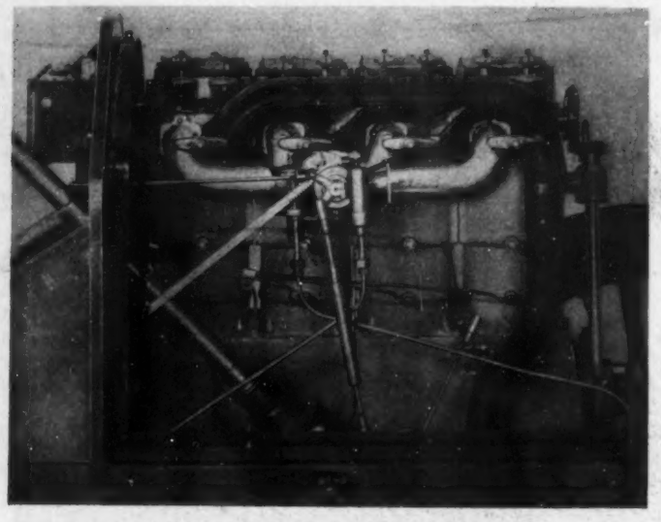
Those who are familiar with the construction of the car will be interested in the detail changes referred to. The transmission, which is of the selective sliding gear type, has four forward speeds, instead of three, with direct drive on the fourth speed; and the gearshafts are mounted in imported Hess-Bright ball bearings instead of plain bronze bearings as heretofore. The 1906 models had three-disk clutches; the new machines have multiple-disk clutches with 51 disks each, the friction surface being 1,500 square inches. Tremendous holding power and extremely smooth and easy starting characterize the new clutch. The rear sprockets for the side chain final drive are of cast steel, made integral with the brake drums and bolted to the rear wheels. Ball bearings have replaced rollers for the wheels, both front and rear. Fan-blade spokes are cast in the flywheel, and the old fan behind the radiator is no longer used; the air is drawn backward by the flywheel alone. The gasoline tank has been enlarged by five gallons, now carrying 25 gallons.

For those who are unfamiliar with the Matheson car it may be said that it follows standard touring car lines in a general way, having four-cylinder vertical motor in front, pressed nickel steel framing narrowed at the engine space, sliding gear transmission and double side chain drive. The most distinctive feature of the engine is perhaps the ignition system. This is of the make-and-break type with a low-tension alternating magneto as a source of current. There is no means for varying the time of ignition except to retard the spark for starting. After the engine is started the ignition is advanced to its limit and the point of ignition remains constant while running. With the very hot spark produced by the Matheson igniter the manufacturers state that it is entirely unnecessary to change the time of ignition under any circumstances while running; and the record of the car on the road would certainly seem to bear this out. The most interesting part of the ignition system, however, is the device which makes it an easy and certain matter to start the motor on the spark at any time when there is a charge of gas in a cylinder whose piston is over the dead center after the compression stroke. By pushing a knob on the end of a rod which projects backward through the doshboard within easy reach of the driver, a trigger trips the igniter of the cylinder that is ready to fire. The peculiar ingenuity of this device lies in the fact that it invariably selects the right cylinder, and fires the charge without any additional manipulation of the ignition apparatus. All that is necessary is to give the knob a push, and the thing is done. Of course if there is no charge in the engine there will be nothing to ignite; but by stopping the engine by cutting out the ignition, leaving the throttle open, the cylinders will be filled with mixture, ready for an automatic start.

The cylinders are cast individually, with integral water jackets and mechanically-actuated valves all opening directly through the separate bolted-on heads of the cylinders. Thus the cylinders and their jackets are perfectly cylindrical, without protuberances or irregularities, and to this fact the Matheson company attributes the excellent compression-holding qualities of the engine, explaining that the expansion is equal all round and there is therefore no distortion under the influence of heat.

The crankshaft is made from a nickel steel forging and has

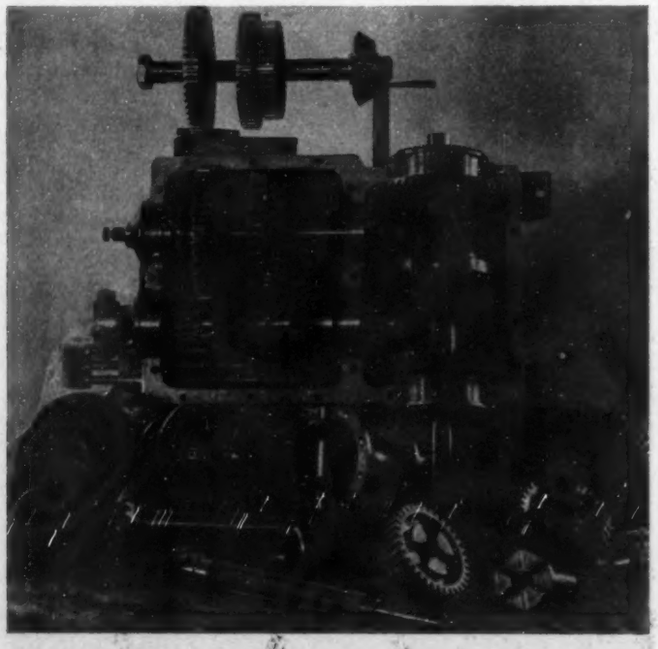
FOOTBOARDS REMOVED SHOWING FAN BLADES IN FLYWHEEL



CARBURETER AND EXHAUST SIDE OF MOTOR.

five journals running in bronze bearings. The flywheel is bolted to a flange forged integral with the shaft. The aluminum crankcase is divided on a horizontal line and the upper half carries the bearings for the crankshaft and, on the outside, the supporting arms for the engine. Between the arms a solid web is cast, stiffening the whole structure and acting as a protecting guard or pan. A sort of webbed partition is cast horizontally in the case on a line with the crankshaft bearings, the cranks and connecting rods working through openings in this wall. The lower half of the case acts merely as an oil reservoir, being subjected to little or no stress. The engine is automatically lubricated by a force-feed oiler with sight glasses, lubrication being supplied only when the engine is running. Splash from the oil carried in the crankcase is used also, the crankcase partition acting as a baffle to prevent an excess of oil from reaching the cylinders.

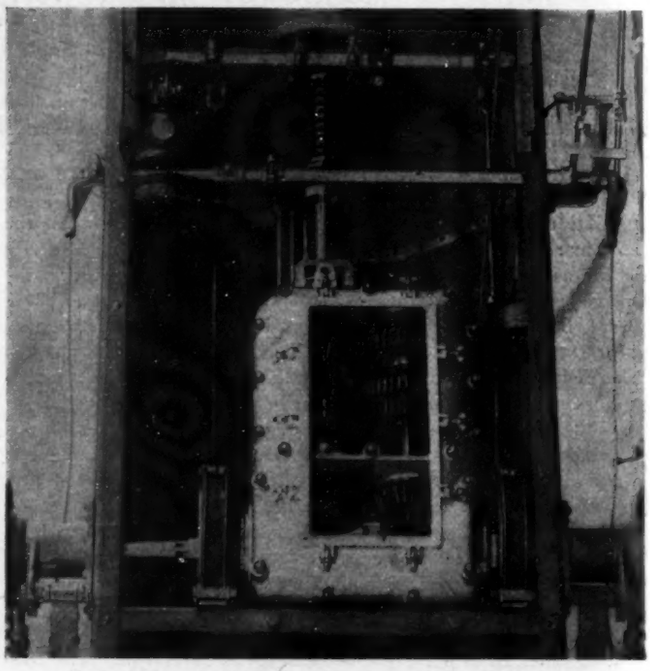
A very useful device fitted to the car is the hill-pawl—a simple pawl arranged so that it can be made to engage with the sprocket teeth in the rear wheels. This enables the operator to stop the car while ascending a grade and to hold it without the use of the brakes, and the ability to do this may often prevent serious accident. Moreover, it greatly lessens the difficulty of starting up grade, as there is no brake resistance to the forward movement of the car such as there would be if the wheels were held from rotating by a friction brake of the ordinary type.



GEARS, SHAFTS, AND BALL BEARINGS: MOUNTED AND DISMOUNTED.

A very efficient muffler is employed, the sound of the exhaust being reduced to a mere swish; a cut-out is fitted so that the engine can exhaust direct into the air in case the operator wishes to use the very little additional power absorbed by the muffler, or if he desires to note the firing of the cylinders by listening to the exhaust.

The equipment of the car is more than ordinarily complete, consisting of two large acetylene searchlights, two side lamps and a tail lamp burning oil, a generator for the searchlights, a horn, a complete set of tire repair paraphernalia and tire tools, a tool kit, floor mats, two auxiliary seats for the tonneau and a baggage rack. The hood is of aluminum, opening from either side and easily removable if necessary; the guards are also of aluminum, detachable, and the front guards have extensions reaching to the frame, leaving no space for mud and dirt to fly through. Bodies are of aluminum and are upholstered in hand-buffed leather of the best grade. The mechanism of the car is protected from dirt and flying water by a pan extending from the extreme front end of the frame to the rear end of the transmission gearcase.



FOUR-SPEED SELECTIVE SLIDING GEAR TRANSMISSION.

The Matheson carbureter is of a peculiar type, having no float; air enters through a series of ports and gasoline is forced to it by a gear-driven pump. A throttle is placed in the pipe between the carbureter and the engine, controlled by a pedal accelerator and by a small lever on the steering wheel, the pedal and lever being independent of each other.

The spring hangers of the Matheson are of a distinctive type. Instead of being fitted with the usual shackles, the ends of the springs slide longitudinally on short round steel bars, this taking care of the lengthening and shortening effect caused by the rising and falling of the springs. The rear springs are 52 inches long and the front springs 35 inches long. The wheelbase of the 35-horsepower car is 117 inches and of the 50-horsepower machine 123 inches. In both cases the wheels, both front and rear, are 36 inches in diameter, and the front ones have 4-inch tires. On the big car the rear tires are 5 inches and on the smaller machine 4 1-2 inches. The tread or gauge is 56 1-2 inches on both cars. The price of the large car, with touring body, is $5,500 and the smaller model, similarly equipped, costs $4,500. A runabout body on either costs $500 less and the landaulet and limousine bodies cost a thousand dollars more each.

WHAT THE CLUBS ARE DOING IN SNOWTIME

The Selection of the A. C. A. Committees.

NEW YORK, Dec. 17.—President Colgate Hoyt has made his committee appointments for the ensuing year, there being thirteen committees, made up as follows:

Executive Committee.—Dr. Schuyler Skaats Wheeler, chairman; A. R. Shattuck, Henry Sanderson.

House Committee.—Dr. Schuyler Skaats Wheeler, chairman; A. R. Shattuck, Henry Sanderson, Dave H. Morris, George F. Chamberlin.

Good Roads Committee.—A. R. Shattuck, chairman; Col. John Jacob Astor, John F. Plummer, Jr.

Exhibition Committee.—Gen. George Moore Smith, chairman; Alan R. Hawley, William Pierson Hamilton.

Runs and Tours Committee.—Waldron Williams, chairman; Carl H. Page, Cortlandt Field Bishop, Augustus Post, A. R. Shattuck, J. M. Porter, Winslow Tracy Williams.

Library Committee.—A. R. Shattuck, chairman; Philip T. Dodge, the Rev. Wilton Merle Smith.

Membership Committee.—Melville D. Chapman, chairman; Charles B. Dillingham, Gage E. Tarbell.

Law and Ordinance Committee.—W. W. Niles, chairman; Winthrop E. Scarritt, William H. Page.

Racing Committee.—George Isham Scott, chairman; William K. Vanderbilt, Jr., James L. Breese, Samuel B. Stevens, E. R. Thomas.

Map Committee.—Cortlandt Field Bishop.

Building Committee.—Dr. Schuyler Skaats Wheeler, chairman; A. R. Shattuck, Gen. George Moore Smith, Dave H. Morris.

Sign Post Committee.—Jefferson Seligman, chairman; J. Horace Harding, Melville D. Chapman.

Committee on City Streets.—W. W. Niles, chairman; William R. Warren, C. E. Knoblauch.

The club's board of governors is giving much attention to various automobile evils complained of in the metropolis, including the smoke nuisance, needless blowing of horns and use of acetylene headlights in the city limits.

President S. B. Stevens, of the New York Motor Club.

NEW YORK, Dec. 17.—Samuel B. Stevens, well known as one of the pioneer autoists of the country, and a notable participant in racing and touring contests, is now the president of the New York Motor Club, having been elected at the recent annual meeting. Robert Lee Morrell found it impossible to accept the first vice-presidency and the Board of Directors will fill the vacancy. The other officers are: Second vice-president, Frank Griffin; treasurer, R. H. Johnston; secretary, A. B. Tucker; board of directors, W. J. P. Moore, W. J. Morgan, R. V. Howell and A. L. Kull. Forty new members were elected, the present total being 215.

An A. C. A. Member of Johnstown, Pa., Entertains.

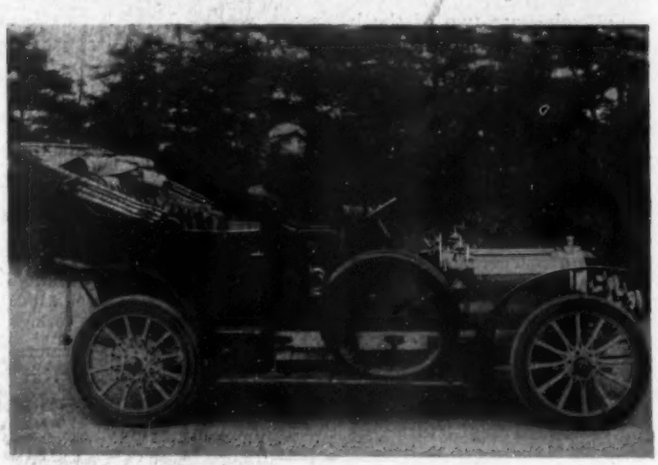
JOHNSTOWN, PA., Dec. 17.—Jacob M. Murdock, a prominent local automobilist, who is a member of the Automobile Club of America, recently entertained several score of Johnstown auto enthusiasts. Mr. Murdock utilized the third floor of his spacious house for a banquet hall. A large table laid as nearly as possible in the shape of an automobile was constructed; automobile tires, lamps and other accessories were scattered about the room, and in the decorating scheme the yellow and green A. C. A. colors predominated. Miniature autos were the favors, and the procession from the parlors below to the banquet-room was started by the honk honk of an auto horn. The menu bristled with auto kinds of refreshments and the speech making was diversified and interesting.

A. C. of Galveston to Hold Another Meet.

GALVESTON, TEX., Dec. 15.—Plans are in preparation for another race meet under the auspices of the Automobile Club of Galveston, on the beach here. Either New Year's Day or February 22 will be the day selected.

The Hard-working Treasurer of the A. A. A.

There has not been any more consistent believer nor a harder worker in the American Automobile Association than George E. Farrington, the present treasurer, whose re-election is generally demanded by A. A. A. clubs and individual members. Mr. Farrington is a member of the Automobile Club of New Jersey, with clubrooms in East Orange, and his connection with automobiling dates from pioneer days. Believing thoroughly in the necessity for a national organization, Mr. Farrington has generously given for several years past his unrewarded services as treasurer, in which position his capabilities have been tested several times.



A. A. A. TREASURER FARRINGTON IN HIS CLEMENT-BAYARD.

when the organization's finances required skillful handling, Now, with a comfortable balance of thousands of dollars in the treasury, to be utilized in furthering the general work, Mr. Farrington predicts that the next twelve months will result in a doubling of membership and influence of the A. A. A., the 1907 president of which will be Judge William H. Hotchkiss, of the Automobile Club of Buffalo, the present first vice-president.

Activity of Motor Boat Club of America.

NEW YORK, Dec. 17.—With every indication of the securing of a permanent clubhouse by the time the yachting season opens for 1907, membership in the Motor Boat Club of America is increasing at a very rapid degree. The fact also that the club will be found taking a very active part in many notable events during the coming season, notable of which is the long-distance ocean race from New York to Bermuda; the Jamestown international motor boat carnival, and their own race week, which will occur the latter part of the season, is no doubt accountable for the great interest that now centers in this club. While but a little over a year in existence, the membership in the club has passed the century mark, with numerous applications being received from time to time. At a meeting of the Board of Governors held on Thursday it was reported that the clubhouse would be located at some very convenient point on the Hudson river, and the Committee on Ways and Means are bending every effort to locate a site and to begin operations in the way of building at the earliest possible moment.

The officers and committees for the coming year are as follows: Commodore, Edward J. Schroeder; vice-commodore, Joseph H. Hoadley; rear commodore, Dr. S. Oppenheimer; secretary, Hugh S. Gambel; treasurer, Charles Francis; fleet captain, Charles H. Lary; fleet surgeon, J. Lewengood, M.D.; board of governors, John D. Roach, Louis Neumann, M.D., Edwin A. Stevens, Jr., Charles Boucher, William B. Hayden and Frank

D. Gheen; regatta committee, M. M. Whitaker, Edwin A. Stevens, Jr., and Martin C. Erisman.

What Some Missourians Think of Autos.

ST. LOUIS, Mo., Dec. 17.—In order to ascertain the number of automobiles in Missouri, and to get into communication with the owners throughout the State for the purpose of interesting them in the proposed new Missouri Motor Vehicle law, Secretary-Treasurer Roy F. Britton, of the Automobile Club of St. Louis, asked the county clerks in each of the 114 counties of Missouri to furnish him the names and addresses of the owners of automobiles in their respective counties. Some of the answers were interesting and amusing and evidence the antagonistic feeling which the rural districts have for the automobile.

Following are two of the letters:

Hermann, Mo., Dec. 5, 1906.

Roy F. Britton, St. Louis, Mo.

Dear Sir:—Gasconade County sports neither a single automobile nor flying machine. Don't bring 'em here to scare our cows and horses and run over our dogs, chickens and sech. The first "honck" echoing over our peaceful hills will bring out a mountain howitzer at every cross road. I therefore give you the danger signal—Honk! Honk!! THEO. GRAF.

Bolivar, Mo., Dec. 5, 1906.

Roy F. Britton, St. Louis, Mo.

Dear Sir:—There isn't a man, woman or child in Polk County that ever saw an automobile. There never was one in this county, and I do not think our people would stand for anything of the kind. S. G. KELLY, County Clerk.

If these letters indicate the popular sentiment of the farmers, it is very likely that the automobile clubs of St. Louis and Kansas City will meet with some very stringent opposition when they go to the Legislature with their bill next January.

Bay State Automobile Association Waxes Prosperous.

BOSTON, Dec. 15.—The Bay State Automobile Association has just completed arrangements by which its members will have the use of the clubhouse and grounds of the Salem Country Club during the coming season. The club is located about fifteen miles from Boston, and there are excellent roads. There are ample grounds for outdoor sports and the dining-rooms in the clubhouse have a reputation for fine service. It is anticipated that the club will prove popular with the members of the Bay State Association during the spring and summer months. The Bay State Association is growing rapidly, so rapidly, in fact, that the board of directors has recently voted to limit the membership to 800 active members. These, with the associate members, will make a total of at least 1,000 members by next summer. The new clubhouse on Dartmouth street is proving exceedingly popular, and almost any time of day finds many automobilists gathered there.

A Dangerous New Jersey Railroad Crossing.

ISELIN, N. J., Dec. 17.—Probably one of the most dangerous crossings on the New York-Philadelphia route is the one at Iselin. A. D. Hyde, a prominent resident of this place, has had conferences and correspondence with Robert P. Hooper, chairman of the A. A. A. National Highways Committee, and Mr. Hooper is interesting the other Jersey members of his committee, President J. H. Wood, of the New Jersey Automobile and Motor Club, and William P. White, of the Mercer County Automobile Club. Mr. Hyde offers, in case the automobilist can secure the aid of the Pennsylvania Railroad in securing an overhead crossing at this point, to donate the necessary property.

Syracuse Club to Fight New York Toll Roads.

SYRACUSE, N. Y., Dec. 17.—The Automobile Club of Syracuse has appointed a committee to consider fighting the continuance of the toll roads in the vicinity of Syracuse. The annual banquet of the club will take place at the Yates Hotel in March, during which month Charles J. Glidden will also deliver a round-the-world illustrated lecture.

Harvey M. Smith and R. M. Hatch, two members of the club, recently made a snow run to Ithaca, during which there was more or less exercise with a snow shovel. They made the journey in a 45-horsepower Pierce Arrow.

THE AUTOMOBILE CALENDAR.

AMERICAN.

Shows.

Jan. 12-19.....—Annual Automobile Show of the Association of Licensed Automobile Manufacturers, Madison Square Garden, New York City.
Jan. 19-26.....—Baltimore (Md.) Automobile Show of the Automobile Club of Maryland and Dealers' Association.
Jan. 21-28.....—Los Angeles, Cal., Morley's Rink, First Automobile Show of the Automobile Dealers' Association of Southern California.
Jan. 28-Feb. 2..—Washington (D. C.) Automobile Show, Light Infantry Armory. Washington Automobile Dealers' Association.
Feb. 2-9.....—Chicago Automobile Show, Coliseum and First Regiment Armory. S. A. Miles, manager, 7 E. 42d Street, New York City.
Feb. 11-16.....—Detroit, Mich., Sixth Annual Automobile Show, Light Guard Armory, Tri-State Automobile and Sporting Goods Association. E. E. McMasters, manager.
Feb. 18-23.....—Fifth Annual Automobile Show, Buffalo, Convention Hall. D. H. Lewis, manager, Teck Building, Buffalo.
Feb. 25-Mar. 2..—Portland, Me., Second Annual Automobile and Power Boat Show, The Auditorium.
March 2-9.....—Chicago, Second Annual Power Boat Show, Seventh Regiment Armory. W. C. Anderson, manager, 19 E. Huron Street.
March 4-10.....—Kansas City, Mo., First Annual Automobile Show. Convention Hall. Frank L. Woodward, manager, Willis Wood Theatre Building.
March 9-16.....—Boston Automobile Show, Mechanics Hall and Horticutlural Hall, Boston, Automobile Dealers' Association. Chester I. Campbell, manager, 5 Park Square, Boston.
March 18-23....—Providence (R. I.) Automobile and Power Boat Show. Infantry Hall. Frederick M. Prescott, manager.
April 6-13.....—Montreal, Canada, Second International Automobile and Sportsman's Exhibition. R. M. Jaffray, manager, 309 W. Notre Dame Street.
April 8-13.....—Pittsburg, Pa., First Annual Show of the Pittsburg Automobile Dealers' Association, Duquesne Garden.

Race Meets and Hill Climbs.

Jan. 22-26.....—Ormond-Daytona (Florida) International Race Meet, Florida East Coast Automobile Association.

Motor Boat Races.

Jan. 29-Feb. 1..—Palm Beach, Fla., Annual Races of the Palm Beach Power Boat Association.
June 8 .....—670-Mile Ocean Motor Boat Race, New York to Bermuda. Motor Boat Club of America and Royal Bermuda Yacht Club.
Sept. 2-6.....—Jamestown (Va.) Exposition, Motor Boat Races.

FOREIGN.

Shows.

Jan. 5-12.....—Dublin Motor Show, Irish Automobile Club.
Jan. 18-26.....—Birmingham (Eng.) Automobile Show.
Jan. 25-Feb. 2..—Liverpool Motor Show, Tournament Hall.
Feb. 1-9.....—London, Crystal Palace Motor Show.
March 7-16.....—London, Olympia Commercial Vehicle and Motor Boat Show.
April 6-13.....—London, Agricultural Hall Motor Show.

Race Meets, Hill Climbs, etc.

April 21.....—Targa Florio Tour (Sicily), Auto Club of Milan.
May 29-June 1..—Irish Automobile Club Reliability Trials.
June 24-29.....—Scottish Reliability Trial, Scottish Automobile Club.

PASSING THROUGH WARNER'S RANCH, WITH ITS MAGNIFICENT SCENIC BACKGROUND, ON WHICH THOUSANDS OF CATTLE GRAZE.

AUTOING THROUGH SOUTHERN CALIFORNIA

By H. L. SEFTON.

WE had talked about this trip for a long while, but first one and then the other had some unavoidable reason for not going until it looked as though we never would get off. Finally, the Head said he was going Monday morning; if anyone wanted to go along they could, for his part he would wait no longer. Monday found Us ready.

We realized the journey ahead, and went prepared. Two extra tires were strapped on one side, four extra inner tubes were folded away under the rear seats, and an extra satchel of tools made it possible to set up a first-class repair shop on short notice.

What We Carried for the Journey.

There was, besides, a tin box filled with "keep-able" lunch —"in case anything should happen,"—and extra coats and rugs in a big canton-flannel bag, an excellent idea to keep them free from dust.

We started away in fine spirits, the Junior member remarking he had a "hunch" we were going to have a good time—and we did. The first stop was at Alpine, a little mountain hamlet whose surrounding hills are peopled with boarding houses and small inns of every description, for the climate is good and the distance from town convenient for a summer outing. We reached there about 5 o'clock in the afternoon, after a most enjoyable run through valleys yellow with grain stubble or green with the vine of the fast ripening grape, through groves of the sweet-smelling eucalyptus, and over passes where one felt lost among the scraggy hills. The altitude, a little less than 2,000 feet, not being high enough for heavy timber, the hills and mountains were either exceedingly rocky or covered with chaparral—mostly the dark green of the greasewood, the roots of which are largely used for firewood. Part of the way was by a stream of clear, cool spring water, over which hung the branches of sycamore and live oak. To add to the picture there were several old adobe houses, fast crumbling to dust, and coveys of quail, some nearly full grown and others but wee chicks, and hundreds of swift-flying doves.

We had a little mishap that for awhile made things look as though the Junior member might lose his job as a prophet. We had reached a narrow strip of road, bounded on each side by a barbed wire fence, and in the middle of which was a stump. On one side of the road was a mud hole of unknown depth, on the other a rancher with a balky horse which positively refused to move. There was nothing for us to do but try for it, which we did. There was a sickening, crackling crash; we went on a few yards, and then stopped to examine the damage; the stump was considerably done up (the horse about a mile down the road). One hesitates to go on a several-hundred-mile trip with a bent shaft, and that is what we had.

Continued, Despite a Bent Shaft.

We held a council under the friendly shelter of a big live oak, and decided, as we had waited so long to make this trip, we did not propose to let such a little thing as a bent shaft keep us back. So, with determination and courage, we turned the crank—and right here I want to say that that Pope-Toledo bore her suffering nobly; never once did she moan or groan, but up grades and down grades, through sand and through water, she took us safely.

At Alpine we had a good rest, remaining until the next afternoon. The Junior member and Tom, our very clever chauffeur, gave the car a thorough overhauling preparatory to the work ahead. Soon after leaving Alpine, an old man was met and asked what was the distance between that point and Descanso. He scratched his head, and smilingly answered: "It all depends on the way you are goin'. Now, from Descanso to Alpine it's only thirteen mile, but from Alpine to Descanso it's a good twenty-six mile." When we saw that grade we believed him. There is a rise of over 1,700 feet in five miles. We passed through a very fertile valley of grain and pasture fields, dotted with clumps of live oak, and soon after the grade begins, the country becomes wild and unpopulated, great towering mountains are on all sides. The Valley Veijas, which we have just left, gradually dissolves into a part of the picture, the hills and mountains as we round curves seeming to drop in place to form a frame for the setting. Oh, how small, how perfectly insignificant one feels in such surroundings. Then is it that one must realize the mighty hand of the Master that made it all. God seems nearer up among the mountains.

Tom is an Easterner, and, as we suddenly rounded a curve disclosing another mass of mountain peaks away off, he cried out: "Great Scott, the Creator certainly had lots of material when he made this country."

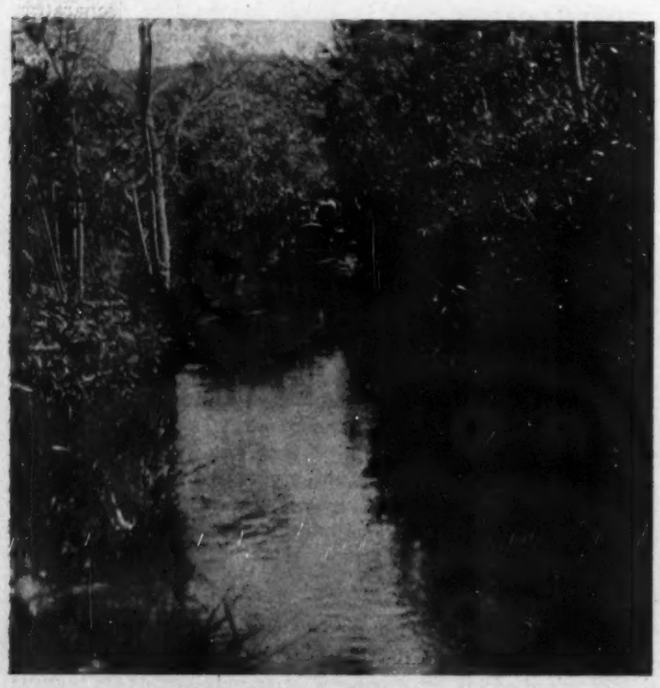
As the Scenery Looked to an Easterner.

To realize what California is, and why a Californian is justly proud of his State, one must travel over it; its bigness

A BIT OF A GRADE WITH A GOOD ROAD.

alone is impressive, and there is no other State that combines so much. When we reached the top of the grade, which we did without a particle of difficulty (only stopping once at a watering trough, fed by a spring, to put in some cold water to cool our engine), it seemed indeed as though we had reached another country. At the foot of the grade we left fields under a high state of cultivation; ranch houses, neat fences; here were no fences except at rare intervals, no fields save of the native wild grass, over which wild-eyed cattle roamed; the trees were mostly live oak and sycamore, with great clumps of manzanita and cool mountain streams glittering here and there among them.

Descanso is but a tiny village with a hotel, two stores, a postoffice, and a shanty or two. We left there early the next morning, as we had another climb of 1,200 feet, and over a



INCIDENTALLY WE FORDED A PICTURESQUE MOUNTAIN STREAM.

pretty rough road. This, however, was the most delightful run of the trip. The trees soon began to be larger, great giant pines that seemed fairly to reach the sky, with cones as big as one's head; black and white oak, great trees of arbor veita, and a thick undergrowth of laurel, haw manzanita with its polish, red wood, and that beautiful but depraved bush commonly called poison oak, with its rich coloring, and, through all, a regular tangle of the fragrant blossoming wild rose. We crossed the upper Sweet Water river, which here has its source fed by gurgling mountain streams; fat, sleek cattle stopped drinking to gaze at us, grey squirrels ran on ahead, while the crested blue jay screamingly heralded our coming. About 10 o'clock we reached a particularly inviting spot by the side of a stream near a giant twin pine, where we with one accord decided to "bide-a-wee." Resting an hour, we reluctantly left, reaching Stonewall, at the foot of the Cuyamaca peaks, for a late luncheon. There we found but a hotel, fifteen or twenty cottages, and the large buildings pertaining to the gold mine, now shut down, from which the place gets its name.

The waters of the Cuyamaca lake, close by, sparkling like a sapphire in the bright sunshine, were a welcome sight to us. Already were our arms aching for the rod and reel, for well we knew the wary bass made a home therein. The next day we did our fishing, made no phenomenal catches, but had good sport, caught all we wanted, and carefully threw back all the undersized ones, for—well, we want to fish again. We were at Stonewall two nights and as many days, and then we started across the mountain through the quaint little mining town of Julian, where the bright yellow gold is also found, and commenced our leisurely descent.

Where the Bright Yellow Gold is Found.

The road from Stonewall to Julian was the roughest of the entire trip, but the scenery was grand, the altitude something over 5,000 feet. Away up in the sky a pair of eagles were lazily floating, innumerable coveys of quail ran across the road, or arose on hasty wing as we rolled past. One thing struck me as very strange; we saw hundreds of valley quail in the highlands—they seemed to disregard altitude; but never a mountain quail below 3,500 feet. Doves were in pairs or in large flocks all along our journey; they seem happy anywhere.

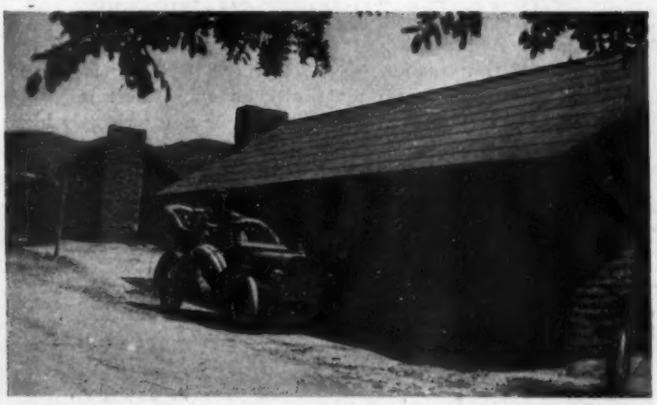
The Poor Indians Had to Move.

Our first stop was at the Detrick Ranch, where they made us so comfortable and fed us so well that we stayed two days and nights. The boys, when they were not hunting, ate apples, for which the Ranch is justly famous. From Detrick's we ran down to Santa Ysabel, a fall of over 1,500 feet; then on through the wonderful valley that comprises Warner's Ranch, a ranch particularly interesting, as up until a few years ago it was a United States Reservation for the Indians. Fierce, hard, legal battles were fought, and, finally, in the highest court, it was decided the Indians must go. So Uncle Sam moved them to another home across the mountains. Poor things; it has been move on—on—on for ages, and will be, I guess, till the end.

This Ranch contains over 30,000 acres, the most of the land good. Thousands of cattle were grazing as we went through, some standing to their bellies in the rank grass. Springs and small streams seemed everywhere. At the "Hot Springs," where the Indians used to live, we found the same old adobe houses with their walls two feet thick, built by the Indians in days gone by, only cleaned, whitewashed inside and out, floored and re-roofed, a layer of dried reeds a foot thick between the ceiling and roof for ventilation—a necessary precaution, for the heat is something fierce.

As I sat in an American chair, with my feet on an American-made carpet, and looked about the room with its twentieth-century stuff, I contrasted in my mind the conditions of

THROUGH THE RANK GRASS ON WARNER'S RANCH.



AN OLD ADOBE HOUSE AT WARNER'S HOT SPRINGS.

now and a quarter of a century ago. It was easy to weave a romance about those walls, particularly as I saw on one side a little niche built for, and no doubt was the receptacle of, the candle and crucifix. I closed my eyes and seemed to see the family life that used to be within those adobe walls; the inhabitants were untutored, a good deal of the primeval savage still in them. Dirty? Yes, and lazy. But they had hearts; they loved, hated and worshiped, as do we all; they had their sorrows and had their happy times—no doubt their hearts ached in leaving the only home they had ever known, just as ours would, yours and mine, if we were peremptorily turned out of our homes. I am told that some of the old men and women wept and refused to go, saying they wanted to die where their fathers had died, but the law said—go—and they went.

The run down to Lakeside was a good one. For many miles we found the same conditions as on the other roads going up, nothing particular to chronicle excepting one exceedingly stiff grade, a fall of nearly 2,000 feet in three miles. At Lakeside Inn we realized we had once again reached civilization when we saw daintily-dressed women on the veranda and men in immaculate ducks strolling about the grounds.

The Inconvenient Return to Civilization.

We were covered with dust and possessed stubble of over a week's growth. We slipped inside as quickly as possible, and made one last dig into those suit cases with a vain hope of finding something presentable therein. We had a rare good lunch at the hotel, rested a while, and then made the easy run of fifteen miles through the beautiful El Cajon valley to our Monte Vista Ranch, where a bath and plenty of clean clothing awaited us. Here we stayed until the next day, when the final run of a little over twenty miles was made to town. A record trip! Aside from the contact with the stump, we had absolutely no trouble of any kind save a leaking valve in one inner tube, which was changed in quick order while we rested in the shade.

As a prophet the Junior member can be recommended.

STARTING A GEAR-BOUND ENGINE.

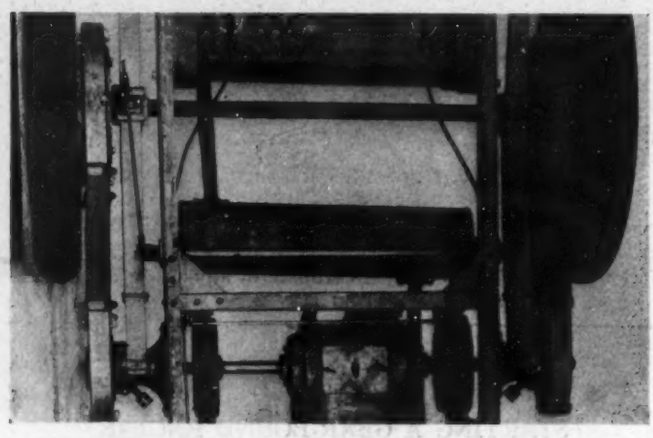
While it is at once the simplest and most nearly fool-proof type of change speed gear extant, and on that account particularly desirable on certain types of cars, still there is considerable to be learned about the planetary gear. It has peculiarities of its own, and, while they are not numerous—at least those that are of an undesirable nature—yet they sometimes combine with those of the motor to form a puzzling problem for the driver to figure out. And what makes the problem appear unfathomable, is the fact that the change speed gear is never suspected. The engine will reward efforts at the crank by giving an explosion for practically every turn, but its good efforts are choked off in their youth, and, after making anywhere from one to a dozen turns, it gives up. Assuming that everything else is in good condition, as will doubtless be the case when the motor makes an effort to get under way, this may be taken as a symptom of the fact that either the low or the reverse gear brake band of the planetary is too tight, and as the motor will not start even under a light load it does not have an opportunity to get up enough speed to overcome this resistance. It cost the writer two hours' tinkering to find this out on one occasion and fully half an hour the second time, so loth is the average driver to suspect this part of the car of preventing the motor from getting under way. A good plan is to make an occasional inspection of the brake bands to see that they are in working order.

WE MET A SUCCESSFUL RETURNING FISHERMAN.

"IT ALL DEPENDS ON WHICH WAY YOU ARE GOIN'."

THE LOZIER TO HAVE CHAINCASES.

Dirt, noise and rapid wear are inherent drawbacks of the chain form of transmission of power where the latter is wholly exposed. And that this is practically its only defect is amply demonstrated by laboratory tests which show a surprisingly high percentage of efficiency with clean chains. Investigation into the subject dates back to the early days of the bicycle, but the loss of power in the case of the latter was so small as to be properly regarded as practically negligible, while the only available means



THE ARRANGEMENT OF THE LOZIER CHAIN CASES.

of protection was so unsightly that the gear case never became popular in this country.

But the necessity for protection in the case of automobiles with a double-side-chain drive is so imperative as to make it a cause for wonderment that it did not receive attention at the hands of designers long ago. The Lozier Company has evidently had this necessity in mind, however, as its experience dates back a number of years, when it was the first to introduce a neat and effective oil-tight casing for the chain of the Cleveland bicycle, and a device designed on equally effective lines will constitute a feature of the Lozier cars for 1907 to be uncovered for the first time at the Madison Square Garden show in January next. The chain cases are of light sheet metal with a section of elastic material placed in the center to allow for relative movement of the axle and countershaft, and add to the appearance of the car rather than detracting from it, as will be evident from the plan view of the after end of the new Lozier chassis shown in the illustration which is printed above in this column.

ROUTE TO THE JAMESTOWN EXPOSITION.

A pamphlet bearing the above title has just been issued under the joint auspices of the Norfolk, Va., Automobile Club and the Jamestown Exposition Company. It is the complete itinerary, in a very convenient form, of a trip taken by Augustus Post, member of the Touring Committee of the American Automobile Association, from New York and Philadelphia to Norfolk and return; as such it is a new and valuable contribution to automobile route information south of the Potomac river. Mr. Post's trip was taken for the special purpose of investigating roads and road conditions in this territory, with the idea of determining whether or not it would be feasible to run the 1907 Glidden Cup tour this way.

The trip itself seems to answer this query broadly in the affirmative. It was not carried southward over the direct line from Washington, D. C., to Richmond, on account of very bad roads across the State of Virginia that way. As an alternative the route was run from Washington to Frederick and Hagerstown, Md.; thence through the Shenandoah Valley to Staunton. Here a southeasterly direction was taken through Charlottesville to Richmond. Naturally, this adds a great deal to the average conception of the distance between the northern cities and the Jamestown Exposition, at the same time it covers some of the most interesting points in Virginia and other localities which have played prominent parts in history. Furthermore, the entire trip figures out a total mileage just about sufficient to meet the conditions of a Glidden Cup tour.

Instead of returning back the same way, Mr. Post has outlined for the return trip the direct line north through Richmond and Fredericksburg to Washington. This is the same road to which reference has been made in a preceding paragraph, but the preliminary survey was carried over the Richmond-Washington direct line, and it is thought that if it should be decided to bring the Glidden tour back this way it could be done, although it would admittedly be a very severe test for the machines taking part. The effort to lay out a course that would be a real contest, we think, would be made good by adopting this round trip—down the Shenandoah Valley and up by the Richmond-Washington line.

One advantage of running it this way would be that the best roads and the finest scenery would be had on the first half of the trip, and the hard pull would come on the last third. Experience shows that it is during the last third that the severest "thinning-out process" comes on nearly every Glidden Cup tour. There has been so much interest created in the Jamestown run for 1907, and so little enthusiasm as yet about any other, that it already seems to lack only the formality of actual selection by the officials of the A. A. A.

HOW MAKING ONE "SIX" BEGAN.

KANSAS CITY, Mo., Dec. 17.—Sales Manager Hildebrand, of the Stevens-Duryea Company, arrived here to-day on his circuit of the western selling territory, and, when approached on the subject of the six-cylindered controversy, wished to be understood as placing himself on record about as follows:

"The development of the automobile motor has really hinged almost entirely upon the demand for more power and flexibility. The single-cylinder car is still good up to a certain point; the twin-cylinder car is better, and the four is better still, but the demand did not cease there, and the result is the six-cylinder engine. With us the question is not a new one," he continued, "as it dates back fully two years.

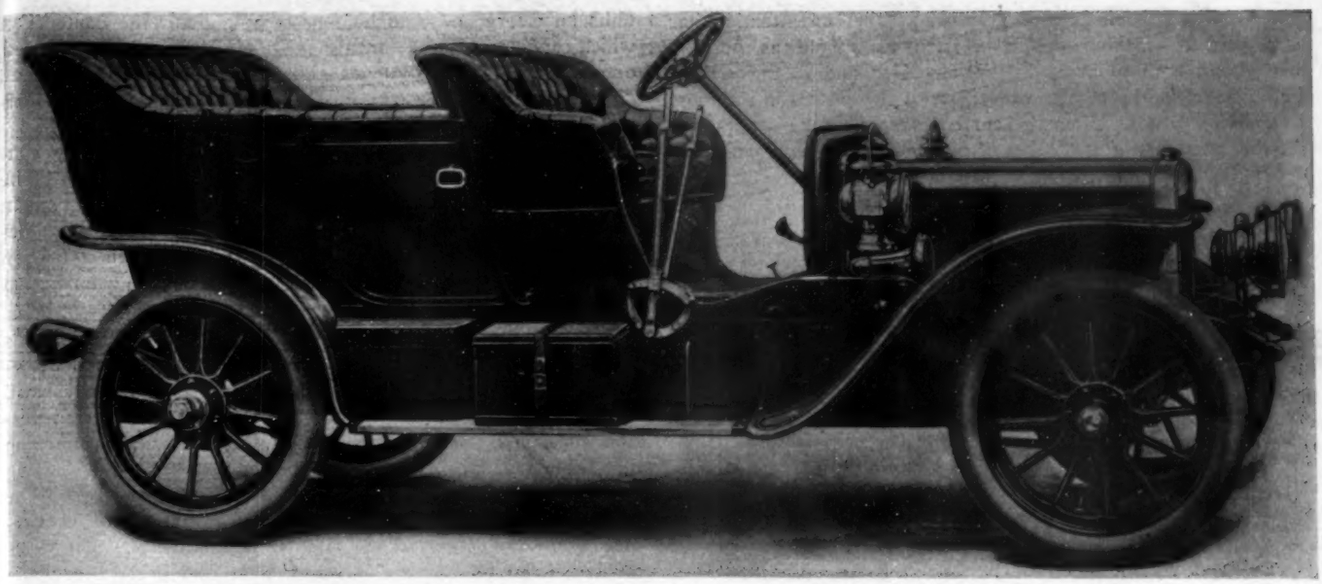
"It came about in this way. Mr. Duryea and myself were discussing the merits of the six-cylinder idea at luncheon one day—he from a mechanical standpoint, while I considered it from the selling end. I picked up four salt-cellars and stood them in a row, and then ranged six alongside them. 'That four looks old to me,' I remarked, and that was really the inception of the six-cylinder car where we are concerned.

"As to the advantages of the six, the man who realized that his four-cylinder motor just fell short of fulfilling his expectations in the way of hill-climbing and flexibility, found just what he wanted in the six. Then, why not continue to multiply the cylinders indefinitely to gain power and flexibility? was asked.

"Because results do not justify the addition, except perhaps in multiples of six. At present the six-cylinder car represents the culmination of motor development, and will for a long time to come, in my opinion. Of course, the four has its own field, but I regard the six as the perfection of the automobile at present. I have read the statements of Mr. Waldon and Mr. Thomas in THE AUTOMOBILE with interest. I met Mr. Thomas recently in Chicago, and he gave it as his opinion that the six would be a failure.

"'We went into the matter,' he told me, 'but found that the additional weight and complication do not compensate for the extra power.'

"For ourselves, it is enough to say that of the 1,600 cars of this type to be built by the Licensed Association during the coming season, we will build 1,100. This shows our faith in the proposition, both from the engineering and the selling end. Fours we shall continue to make, and believe they will always be in demand, but for the man to whom money is no object the six will offer the very thing he wants."



LATEST PRODUCTION OF THE WINTON MOTOR CARRIAGE COMPANY, MODEL M, 40-HORSEPOWER.

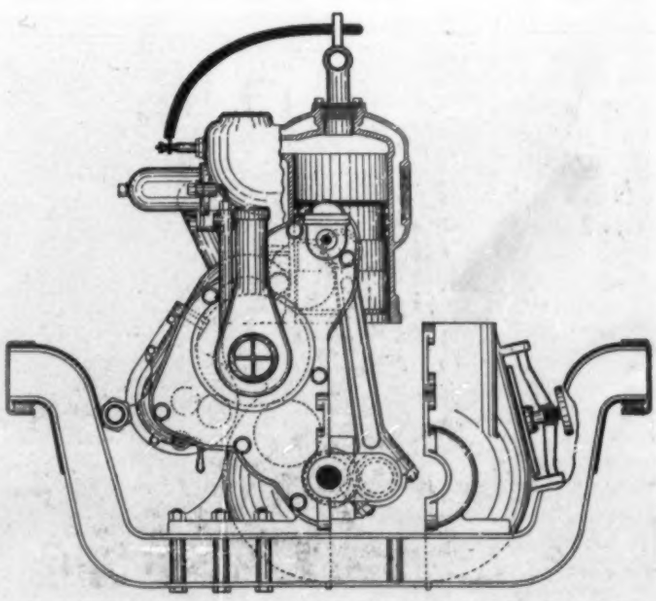
TWO DISTINCT 1907 WINTON MODELS

IN order to more completely meet the varying demands of a larger body of autoists than is possible with but a single type of car, the Winton Motor Carriage Company has decided to put forward two distinctive models for the season of 1907. These will be known as Type X-I-V, 30-horsepower, which is really the successor of Model K of the same rating, with those improvements and refinements that have been suggested by a year's experience in its handling, and Model M, an entirely new car, rated at 40-horsepower. The latter will naturally constitute the Winton leader for the coming season, and while new in the sense that it is not alone an addition to this line, but is also the highest-powered stock touring car ever turned out by this house, its design throughout is characterized by those features of construction and detailed arrangement that has always distinguished the Winton cars.

The New Model M 40-Horsepower.

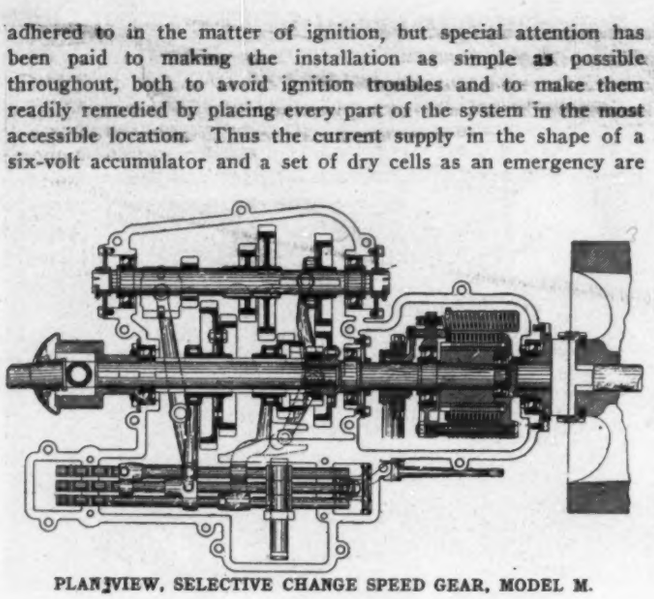
As already stated, the Type X-I-V for 1907 is a continuation of last year's car, while the Model M is not only a new addition, but differs considerably from the latter, so that it will be described first. As a foreword it may be stated that the chief features in which it differs from its predecessors in this line lie in the use of a motor having its cylinders offset on the crankcase, a multiple disk clutch, change-speed gear of the selective-sliding pinion type and a channel section, pressed-steel frame instead of the armored wood frame employed on the lighter car last year. The motor of the new car has its cylinders cast in pairs, with the water jacket completely surrounding each cylinder. They are given considerable offset on the crankcase in order to minimize friction and vibration. The cylinder dimensions are 5 inches bore by 5-inch stroke with the very moderate horsepower rating of 40, at a comparatively low normal motor speed. Interchangeable, mechanically operated valves of liberal dimensions, all placed on the same side, constitute a form of arrangement that serves to concentrate all the moving parts in very small compass, and at the same time leaves one side of the motor entirely free. The crankcase hand holes, held in place by a simple trunnion fastening readily removable by hand, are also placed on this side, rendering every moving part of the motor extremely accessible. The camshaft is also offset from the valve centers to decrease the work of lifting the valves and to lessen the thrust on the roller guides. This shaft is readily removable without disturbing any adjustments, while the valve push-rod and guide are removable without disturbing the valves or valve springs. Nickel steel is used for the valve heads, owing to its great resistance to warping or burning, while the crankshaft is of specially treated carbon steel having a tensile strength of 95,000 pounds to the square inch. To further insure that quietness of running that at all speeds is the aim of every designer, the camshaft gears are composed of rawhide pinions alternating with bronze, all being encased and running in an oil bath. As illustrative of the painstaking attention to detail that is paid to every part of the car, it is only necessary to mention one or two of the many tests employed, such as that to which every piece of metal is subjected upon receipt, and the 300-pound hydraulic test which the cylinder castings have to undergo.

Motor Accessories.—The latest standard practice has been



FRONT ELEVATION WINTON MOTOR, MODEL M, SHOWING OFFSET.

adhered to in the matter of ignition, but special attention has been paid to making the installation as simple as possible throughout, both to avoid ignition troubles and to make them readily remedied by placing every part of the system in the most accessible location. Thus the current supply in the shape of a six-volt accumulator and a set of dry cells as an emergency are



PLAN VIEW, SELECTIVE CHANGE SPEED GEAR, MODEL M.

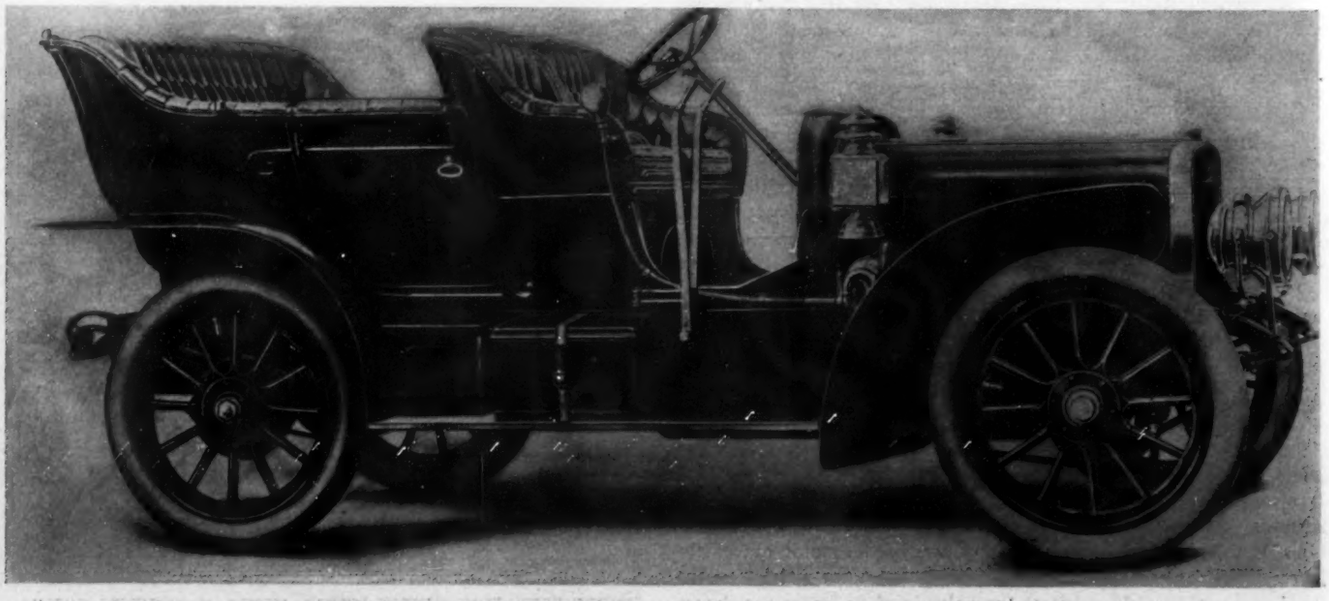
placed in a locked box on the running board. The accumulator is supplied with a non-fluid electrolyte. The remainder of the system is composed of a roller-contact commutator with hardened tool-steel contacts placed on the upper end of a vertical shaft driven by bevel gearing from the camshaft, a quad coil of the unit type on the dash and special Winton spark plugs, placed horizontally over the inlet valves. The carbureter is also an exclusive Winton design and is of the automatically compensating type with the float chamber and float surrounding the aspirating nozzle. It is placed on the side of the motor opposite the valves, the extra length of inlet piping tending to render the mixture more homogeneous. The throttle is connected, as usual, to the lever on the steering wheel sector, also to accelerator pedal.

A Hill precision oiler of the latest type having eight independent leads and a sight test device placed on the dash takes care of the important essential of lubrication. It is driven from the camshaft and is equipped with a drip-pan to prevent leakage falling to the footboard. Valves and gravity feeds are both dispensed with, each lead being separately adjustable. The oil tank is attached to the frame of the car under the front seat, while the fuel supply is carried in a 22-gallon rectangular tank placed at the rear. This is equipped with a sight gauge and also contains an emergency tank holding three gallons, the contents of which cannot be used before the main supply has been exhausted, or without the driver's knowledge. An auxiliary fuel tank placed on the dash provides a gravity feed to the carbureter and eliminates the necessity of any pressure system.

For cooling, a vertical, tubular radiator of new design constantly fed by a gear-driven centrifugal pump is employed, the latter permitting of an efficient thermo-syphon circulation in case it should become deranged on the road. This is supplemented by a large radiator fan gear driven through a friction clutch insuring it against accident when suddenly starting at high speed or from striking adjacent parts.

Transmission and Drive.—This part of the power plant is distinguished by the use of a multiple-disk clutch of modern design, consisting of forty-nine steel disks of comparatively small diameter. Of these, twenty-four are attached to the transmission shaft and twenty-five to the driving shaft, thus attaching that portion of the clutch having the least inertia to the moving part of the mechanism most subject to variations of speed. The clutch is housed in the same aluminum casing as the change-speed gear and is carried on annular ball bearings. The disks revolve in an oil bath to minimize wear and prevent gripping on starting, six springs placed at equidistant points equalizing the tension on the clutch as a whole. Although the motor of the car is only rated at 40 horsepower, the holding power of the clutch is tested to more than double this amount, or 90 horsepower, at a speed of 1,000 r. p. m. The clutch and hand brake are interconnected and the former may be removed as a unit without disturbing the main shaft.

The gear-change mechanism is of the selective type and its shafts are also supported on annular ball bearings. It provides four forward speeds and reverse, the direct drive being on the third when all the pinions are idle. The gear-selecting mechanism is protected with an interlocking device making it impossible to shift to any but the neutral position while the clutch is engaged. Both the main and countershafts of the change-speed gear may be removed without disturbing the clutch; the operating mechanism is housed in the same casing as the pinions, keeping it clean and rendering lubrication certain. The propeller-shaft extension of the main shaft of the transmission is equipped with a new type of roller-bearing universal joints housed in brass casings and constantly running heavy grease. In designing the transmission, the change-speed gear-box, driving shaft and rear axle have been so arranged that when normally loaded all are practically on the same plane, thus avoiding loss of power



WINTON TYPE X-I-V, 30-HORSEPOWER, FOR 1907, THE SUCCESSOR OF MODEL K.

through the angularity of the shaft. The differential is combined in the same casing with the bevel gearing at the live axle, the latter being of the floating type, while the weight of the car is carried on a heavy drawn-steel tube.

Running Gear and Suspension.—All four wheels also run on Timken roller bearings, the front pair being carried on a one-piece Parsons bronze axle of I-beam section. Both torsion and radius rods are provided on the rear axle, the former extending from a point on the supporting axle to a cross member of the frame, while a radius rod extends from each frame rail back of the car center to the spring seat. At its inner end the torsion rod is supported between two helical springs in a vertical cylinder, while the radius rods are pivoted at both ends, maintaining the rear axle always at right angles to the frame and at the same time acting as braces between the two and relieving the rear axle of the greater part of the driving strain.

The special patented Winton twin springs characterize the suspension, experience in their use during the past three years having proved them of superior merit. They are of a double semi-elliptical type, each spring having two upper leaves. The rear springs are attached outside the frame rails, this giving more freedom of action and in combination with a wide spring base, preventing any objectionable rocking of the car body. Twelve-spoke artillery wheels, measuring 34 by 4 1-2 inches, complete the running gear, the regular tire equipment consisting of 4 1-2-inch Goodrich Quick Detachable tires on all four wheels.

Steering and Control Mechanism.—The former is of the screw-and-nut type with abundant bearing surface supported on ball bearings, acting through universal joints of increased size and yoke and block joints with a Lemoine front steering axle. The steering links are adjustable. The steering knuckles turn on roller bearings and are designed to give a shortened turning radius to the car with quick action between the steering wheel and front wheels. The spark advance is governed by the usual control lever on the steering column, while the throttle may be operated either in this manner or by a foot accelerator, as already mentioned. Of the two side levers, the outer one is employed to apply the internal-expanding brake on the rear hubs and at the same time releases the clutch, while the inside lever operates the gear-changing mechanism. All pedals are of the push type and are adjustable to suit the driver's comfort and convenience.

Four sets of brakes are provided, all of which center on breaking hubs attached to the driving wheels. Two of these are of the external-contracting type and the other two of the internal-expanding order, but all hold the car equally well in either direction. The braking strain is equalized in every case.

The motor radiator, tanks and ignition apparatus are so arranged on the chassis that the latter will accommodate any type of body, and the latter may be purchased separately if desired, the chassis listing at $3,200 complete. Equipped with a seven-passenger body of the touring type, the car lists at $3,500.

New Winton Type X-I-V.

As already mentioned, this car is the successor of the Winton Model K for 1907, and although it is still rated at the same figure—30 horsepower—is a lighter and faster car than its predecessor. Like the Winton Model M, the motor cylinders are offset on the crankcase, and the camshaft is offset from the valve centers, while the valves are all on one side and the motor as a whole is distinguished by the same degree of accessibility to all its moving parts; but in other respects this model embodies those Winton features that have been evolved in several years' practise and improved upon from year to year. These are the individual-clutch type of change-speed gear, the Winton air-governor system of motor control and the special Winton twin spring suspension. With but few exceptions, such as the change-speed gear and motor control just mentioned, the description already given of the larger car applies throughout to this as well. As a touring car in full running order it lists at $2,500, or the chassis alone at $2,250, and as a limousine at $3,500.

BOSTON TRADE'S READY OPTIMISM.

Boston, Dec. 17.—For this time of year there is unprecedented activity in the automobile trade of this city. Almost every manager of a branch or agent has his 1907 models on exhibition and demonstration, and those who have not are fretting at the few days' delay before the new cars will arrive. All are gunning for customers with a vigor that has usually not been apparent until early spring, and if one-half the reports about sales are to be given credence, few dealers will have anything to sell by the time the Boston show arrives in March.

The lateness of the Boston show is deplored, for it is thought that it may have the effect of holding off some purchasers, who otherwise might be induced to place their orders now. Nevertheless, every bit of space for the show in both Mechanics Building and Horticultural Hall has been sold and exhibitors are clamoring for more. Meantime in almost every salesroom little private shows are going on, and many of the exhibits which were displayed in the Grand Central Palace have been sent here.

New Agencies for Boston.

Several new concerns are to open up in Boston next week. Among these is the Dragon Automobile Company, which has a branch on Massachusetts avenue. The Buck & Price Company, a new combination, that has secured the local agency for the Rainier, has just obtained a temporary salesroom on Boylston street, which it will occupy until it can construct a garage for its own use. The George H. Lowe Company, of which George H. Lowe, of this city, and President John P. Coghlin, of the Worcester Automobile Club, are the principal members, is looking for quarters, and as soon as they have been found will bring in the new water and air-cooled Aerocars. H. C. & C. D. Castle, the new representatives of the Lozier, have opened a showroom at the corner of Gloucester and Boylston streets, and this week exhibited the first of the 1907 Loziers.

Expect Greatest Season Ever.

All through the trade the outlook is for the greatest season that has been experienced yet. Interest in automobiles is far greater than ever before and it is asserted that one dealer who handles a popular touring car has already sold his entire allotment of 1907 models. Another dealer stated that last year he sold four times as many cars as he did the year before and that so far this year he has sold five times as many as he had at the same time last year. Similar stories are heard all around, so that it seems likely that Boston and New England will be a banner section in automobile sales for 1907. Christmas seems to make little difference in the sales, for people who want automobiles are able to find sufficient money for a deposit, despite the other demands upon their purses at the holiday season. The dealers are more than gratified with the prospect and they anticipate escape next spring from customers who in other years have driven them to desperation by their demands for deliveries.

MASSACHUSETTS' FIRST 1907 BILL.

Boston, Dec. 17.—The first automobile bill for 1907 has already been filed with the clerk of the Massachusetts House of Representatives. It is a measure drafted by Representative Samuel L. Porter, of Amesbury, and one that will receive the support of the automobilists. The bill provides that fines paid as penalties for violation of the laws relating to automobiles or motor vehicles of any kind shall be paid into the State treasury, to be expended in repairs on highways under the direction of the Massachusetts Highway Commission, or for such other purpose as may be deemed expedient. A similar bill was before the legislature last year, but was sidetracked in order to permit the measure increasing the speed limit to twenty miles to go through. This year, when there is a great cry about the damage done to the roads by automobiles, the bill ought to meet favorable consideration. A determined and well-organized campaign will be instituted by Massachusetts automobilists for its passage.

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Exaggerating and Underestimating Horsepower. It seems but yesterday that every maker tried to outdo his competitor in enlarging on the horsepower rating of his motor. So conflicting, indeed, were the various claims based on practically the same factors—cylinder dimensions, compression and speed, that the various humorous and sarcastic titles given to the output of a motor were legion. Some of the commoner ones were "catalogue horsepower," "dream horsepower," "motor power"—in short, everything but actual horsepower, which, by some mysterious sleight of hand, had been eliminated from the calculation altogether. Interest in the question reached its height a little more than a year ago, and, though the issue was one of little or no importance, relatively or otherwise, it gave rise to numerous controversies and caused heated arguments.

Then, like the vanishing of the latest sensation from the scareheads of the daily papers, it dropped out of sight overnight, and was forgotten as quickly. A report to the effect that French makers have been indulging in something similar all along serves to recall it to mind. There is this rather important difference, however. The American maker exaggerated the output of his motor much in the same fashion that the angler describes the size of the fish that got away, in order to impress on the public what an almighty skilful designer and mechanic he was to be able to get so much more power out of such a small motor than his competitors. The French maker, with a similar end in view, has gone the other way to work. He underrates his motor in about the same proportion. He calls it 20 horsepower, when in reality it is much more, and boasts of how much better a "20" he turns out than his competitors, who may have been more conservative in their exaggeration. In the end it all comes to the same thing. How complete a revulsion there has been on this score where the American designer is concerned, can be best appreciated from the statistics of the American cars shown at the Grand Central Palace and published in THE AUTOMOBILE during the show week.

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The Reply of a Commercial Vehicle Manufacturer. Why does the gasoline-propelled commercial vehicle take hold so slowly? was the question put to the chief exhibitor of this class of vehicles at the recent show in the Palace. "Why can't you get good servant girls?" was the enigmatic response. "Simply because they are paid better to do something else, and that is the reason why we have found it difficult to obtain competent drivers, and the same thing is true of the firms to which we have sold gasoline trucks. The trained and intelligent driver who can keep a car on the road day after day with a minimum of expense and repairs commands a rate of compensation that is utterly beyond the commercial house to pay. The average chauffeur probably gets two to three times as much as the truck driver, though the latter usually has the advantage of easier hours. But that doesn't form a very strong inducement, and it is next to impossible to either obtain good men to drive a gasoline truck or to keep them at it very long if you do get them. Throughout the entire design of our motor and transmission we have aimed at making everything as nearly fool-proof as it is possible to make a piece of machinery, but the mechanism that does not require some intelligence and common sense to keep it running has yet to be built. We equip our trucks with a powerful, slow speed motor, safeguard it with a reliable governor, and use the planetary type of change speed gear, so that there is little to be damaged by inexperienced handling, yet we have found it difficult to educate the average truck driver up to a point where he is capable of taking proper care of even such a simple piece of machinery as this. Those that learn quickly shortly find that their services are in demand at far better wages as drivers of pleasure cars, so that the process of educating men for this post has to be continuous and the trucks are at times out of service for no other reason than that there is no one in the employ of the house competent to drive them. It is not a question of the efficiency of the gasoline truck or the service to be expected of it, for both these are known quantities. But trucks will not drive themselves, and there you are."

Coming as it does from one who speaks from actual experience in the matter, this is an opinion that is entitled to considerably more weight than could be accorded any attempted theoretical explanation of the causes underlying the slow growth of the commercial vehicle of the gasoline type in popular favor. That there are others goes without saying, such, for instance, as the fact that the commercial vehicle has been, in the majority of instances, but a side line with many makers—they have found the manufacture of pleasure vehicles not alone exceedingly profitable but one that requires all their time and effort. This, of course, has no application to the manufacturer who has specialized on the commercial type and makes no other, but the latter is as yet greatly in the minority. Whatever the reasons for this slow rate of progress may be as a whole, the fact that the latter has not been what it should cannot be overlooked, nor is there any immediate prospect of a substantial increase of interest in this direction.

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Why Try to Deceive the Up-to-date Farmer? Never before has there been such a general cry from one end of the country to the other for the betterment of the road, and in all of this agitation for improvement the automobilist unavoidably is a prominent factor. Once upon a time it might have been good policy for the autoist to keep in the background in good roads agitation, for his activity then may have offended the farmer, who now is coming to a realization that good roads are more than worth while, no matter who is responsible for their building. Furthermore, this same farmer is beginning to look upon the autoist as an ally and not as an enemy in securing something which is mutually beneficial.

RURAL DELIVERY REQUIRES ROADS.

WASHINGTON, D. C., Dec. 17.—Although he fails to make any mention of the exhaustive trials with an Orient buckboard made in the rural free delivery service the past summer, the Fourth Assistant Postmaster-General, in his annual report submitted this week, has something to say about roads. It is stated that while the requirement of the department that all roads over which rural delivery is established and maintained shall be in good condition and kept in repair, has resulted in greatly improved roads and the expenditure in the aggregate by local authorities of many thousands of dollars, still there is in many localities such a lack of interest in keeping the roads in a passable condition during all ordinary seasons that the rural delivery is continued regularly with difficulty, and frequently a temporary suspension of the service has been necessary.

The State of Indiana has enacted a law making it the duty of the proper officials to keep in repair and passable condition all the year around the highways in their respective districts along which rural delivery routes have been or may hereafter be established. Legislative action along similar lines, it is understood, has also been taken by the State of Pennsylvania. In States which have not yet organized State highway commissions, the department is cooperating with the Department of Agriculture in bringing about organized efforts for road improvement.

ACCOMMODATIONS FOR FLORIDA MEET

Reports from Florida to the New York representative of the Florida East Coast Automobile Association indicate that Florida this winter is going to have an increase of visitors over past years. The travel will come from the West as well as from the East, and many automobilists have already shipped their cars South.

During the stay of the Glidden tourists at Bretton Woods, N. H., the past summer, Anderson & Price, the managers of the Bretton Woods hotels, successfully endeavored to please their guests, and when the latter were leaving they were surprised by receiving a substantial reduction from the regular hotel rates. These well-known hotel managers have decided to extend the same courtesy to the automobilists during the Florida tournament week at Ormond this winter, as they fully appreciate the reputation that has come to their hotels with the aid of automobilists.

It would be well for those requiring hotel or garage accommodations at either Ormond, Sea Breeze or Daytona to engage same at once. John B. Parkinson, secretary of the F. E. C. A. A., Daytona, will attend to the Daytona and Sea Breeze accommodation, and that at Ormond can be secured by addressing Anderson & Price, Ormond, Fla

TAIL LIGHTS FOR ALL VEHICLES.

CLEVELAND, O., Dec. 17.—Clevelanders are discussing the chances of getting through the city council a measure requiring all vehicles to carry tail lights after dark. Several accidents have been reported lately where automobiles ran into the rear ends of horse-drawn vehicles in dark streets and boulevards. The automobilists think they ought not to be held accountable for such accidents.

Asa Goddard, secretary of the Cleveland Automobile Club, has returned from a trip to New York and Boston. While in the latter city he had a conference with the Massachusetts State Highway Commission relative to desirable plans and specifications for the piece of good road which the Cleveland club will build. Several thousand dollars have already been contributed toward the building of this piece of model road. Last week Secretary Goddard and several members of the club appeared before the council of the village of Nottingham through which the new road will pass. The village made an appropriation of $20,000, which will be used for constructing one mile of the road through town and agreed to co-operate with the club in its work.

PRESIDENT ROOSEVELT AT THE WHEEL.

While on his recent trip to the Tropics President Roosevelt broke more than one precedent: he was the first president to leave his native soil during his term of office and he was likewise the first holder of the presidential chair to handle the steering wheel of an automobile. It happened while he was in Puerto Rico. One of the government officials who had much to do with the plan of entertainment owned a White steamer, which was impressed into service to show the President the country round about Ponce, and it goes without saying that he saw more of it in a single afternoon in that way than he could have in a week otherwise. During the first part of the run it was evident that the President was more interested in the driver's handling of the machine than he was in the country, so that it was not a great surprise to those in the car when he remarked, "I believe I can run the machine," and promptly accepted the invitation to take the wheel that was tendered. Puerto Rico has not yet reached the stage of civilization that brings speed regulations with it, but

"I BELIEVE I CAN RUN THE MACHINE," SAID THE PRESIDENT, AND HE SUCCESSFULLY DID IT.

if there had been any they would have been badly shattered that afternoon, for the Chief Executive showed considerably more interest in "letting her out" than he did in the scenery.

For some reason or other, while the strenuous occupant of the White House has not been at all averse to committing himself on some irrelevancies, he apparently has carefully avoided any leaning toward the very thing that offers the best possible outlet for some of his vast store of surplus energy, but as the result of his experience on his recent trip abroad it is thought that it will not be long before he will be numbered among the ranks of the most ardent motorists the country can boast of.

DOINGS OF A. L. A. M. MECHANICAL BRANCH.

At its December meeting, the Mechanical Branch of the Association of Licensed Automobile Manufacturers discussed subjects showing to some extent the methods employed in the factories to obtain better results and new ideas. The test committee on inlet valve closing for four-cylinder vertical motors handed in its report, as well as the result of its experiments with alcohol as a fuel, and radical changes are expected to be based on their findings. A plug, to be known as the Association Standard spark plug, was adopted; it measures 7-8 inch in diameter with a straight 18-pitch thread clear to the shoulder. An extensive discussion of the racing situation showed that the consensus of opinion is in favor of furthering interest in this respect by building cars to compete with those sent here from abroad. Approval of the Long Island Parkway course was also expressed. The six-cylinder motor for racing cars was discussed at length, and found many advocates.

A VERY POPULAR GARAGE ON UTICA STREET, BUFFALO.

Value of Having Garage Records Well Kept.

But for the well-kept records of Wyckoff, Church & Partridge's garage, at Broadway and Fifty-sixth street, George Ahrents, the well-known clubman and motorist, and his chauffeur might have been held on a charge of manslaughter. A man was killed during the week by being run down by an automobile, and the only means of identification obtained by the police consisted of the last three figures of the number 124. Mr. Ahrents car bearing license tag 34,124, was located in the garage in question and he was called upon to give an explanation of his whereabouts at the time of the accident. The latter occurred at 8 P.M., while the garage records conclusively proved that the car had been checked in at 5:46 that evening and had not been taken out again the same day—facts constituting an unimpeachable alibi.

Kansas Is Developing a Fine Assortment of Garages.

Plans have been made and work commenced on a garage in Galena, Kan., for B. Cooley, general manager of the local agency for the Maxwell-Briscoe-Chase Company. The garage will be 50 x 110 feet, of brick and Carthage limestone, two stories high, and will cost about $15,000, including the very complete equipment of machinery that will be installed in the repair shop. The Maxwell car will be the leading make handled, and a large stock of automobile parts and supplies will be kept on hand at all times. Mr. Cooley has made arrangements for the use of an old race track and has repaired it so he can use it as a place to teach his customers to drive their cars without danger from traffic or other interruptions.

Another Garage for Detroit in Course of Erection.

A new garage is to be opened on Woodward avenue, Detroit, by William J. Roepke and H. D. Keller. For the sake of convenience the building will be but one story high; it will be 72 feet wide and 210 feet long, and the floor, of cement, will be as free as possible from pillars and other obstructions. Extensive skylights will admit plenty of light from above. According to the plans of the partners in the enterprise, the garage will be unusually complete in its equipment and every convenience and comfort will be provided for patrons. Agencies will be taken for several cars, including the St. Louis electric.

NOTES OF THE GARAGES.

C. P. Allen, of Denver, Col., will erect a two-story brick garage on Cleveland place, at a cost of $7,500.

Riley Brothers, of Bridgeport, Conn., are planning to open a garage at Salem when a suitable place can be found.

A new garage, the Onondaga, has been opened at 541 Clinton Street, Syracuse, N. Y., by Grove Warner, who expects to handle the Thomas and Haynes cars and to do a general repair and garage business.

The Palace Garage Company, of New York, has purchased a plot of ground on the south side of Eightieth street, a hundred feet east of Broadway, 48 x 100 feet, and will erect on it a modern garage six stories high.

The Hathorn Auto Company, of Mason City, Ia., has incorporated under the laws of Iowa and has established a garage and sales agency. Charles Edward Hathorn is president and treasurer, William B. Hathorn secretary.

A building which will include a garage and an apartment house is to be erected in Los Angeles by George E. Lewis, at a cost of $26,000. Jay Cook, proprietor of the Electric garage, will occupy the new building when finished.

Harry M. Vale, general agent for the Rambler in Beloit, Wis., will open his new garage about January 1. General repairing will be done, and facilities will be provided for charging electric vehicles. The garage and shop will cover a space of 50x100 feet, and will be centrally located.

A new garage and automobile livery will be opened in Freeport, Ill., by O. H. Nieman, on Mechanics street; it will be ready for business by January 1. The agency for the Jackson car has been secured. The mechanical department will be unusually complete, and will not only be in a position to do all kinds of repair work but automobiles can be built to order.

SOME RECENT BOOKS ON AUTOMOBILING.

A Work That Has Dissemination of Fun for Its Object.

The fun of having an automobile and taking your friends out for trips may be enhanced by the quaint and amusing "Auto Guest Book of Mobile Maxims," by Ethel Watts-Mumford Grant and Richard Butler Glaenzer. Its sole object is to be amusing and to keep a record of the guests on various runs, blank spaces being provided for the purpose. Each page is headed with an appropriate maxim that generally hits some automobile nail on the head. The book is printed on brown paper and every page is illustrated with quaint drawings in blue and black that mix up the oriental and the automobilist in a decidedly diverting way. Published by Paul Elder & Co., San Francisco and New York.

New Local Illinois Route Book.

Samuel P. Irwin, of Bloomington, Ill., has recently issued a small volume of 74 pages, which he has called "Irwin's Illinois Automobile Routes, 1907." There are a number of very interesting and apparently complete itineraries in this small volume, centering principally at the home city of the compiler. While the routes are principally local, they carry the tourist to Chicago and into Wisconsin on the north, and show a connecting line to St. Louis on the south. The book is much superior to the average local route compilation of its kind, and would seem to be valuable to tourists having occasion to run through that section of Illinois.

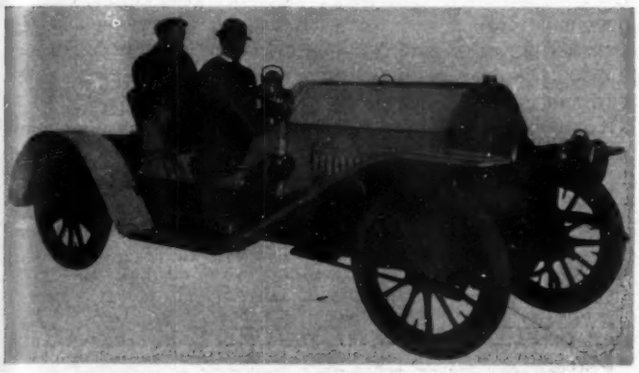
QUINN NOW AFTER THE HILL-COASTERS.

WORCESTER, MASS., Dec. 17.—No longer will there be any coasting in Leicester. The ban has been put on this sport by the selectmen and Jim Quinn, who, at their orders, has kept up a war on automobilists obliged to pass through Leicester for the last three seasons. He has been instructed to see that the letter of the latest ban is lived up to the letter. The Leicester selectmen are bound to get them going and coming, summer or winter, and Quinn is always on the job.

CLEVELAND MONARCH TO CHANGE NAME.

CLEVELAND, O., Dec. 17.—The Monarch Motor Car Company, which has offices at 1201 Citizens' Building, will soon change its name to some other title, as it has been found that the name conflicts with that of another concern in the business. The new name has not yet been selected. The company is headed by Irwin G. Guthrie, Bernard G. Guthrie, J. Holmes and W. D. Drown. It has rented a portion of the plant of the Broc Carriage Company, East Fortieth street, and expects to build about sixty cars the coming season. Fifty of these will be a 40-45-horsepower touring car, while the other ten will follow a 90-horsepower special semi-racer recently completed by W. D. Drown.

The 40-45-horsepower car has a four-cylinder vertical copper water-jacketed motor, measuring 5 1-4 x 5 1-4 inches. The valves are mechanically operated by push-rods and are placed in the head, the exhaust on one side and the inlet in the other. There is but one camshaft with eight integral cams. The crankshaft is 2 1-8 inches in diameter and is of nickel chrome steel. Bearings are of babbitt metal. The camshaft also operates a direct-driven rotary water pump. The carbureter has three nozzles and the throttle is controlled by a central foot pedal and by a lever on the steering wheel. Ignition is by jump spark, current

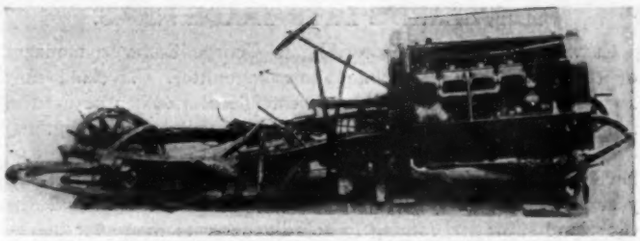


W. D. DROWN IN 90-HORSEPOWER MONARCH

being supplied by a Simms-Bosch high-tension magneto. The clutch is of the cone type, engaging cork insets in the flywheel. It is operated by the usual foot pedal and is interconnected with the emergency brake. The transmission is of the selective type, giving four speeds ahead and reverse with direct drive on the high speed. The gears are of chrome nickel steel, 1 1-8 in face, and the shafts are of similar material, running on Timken roller bearings. The drive is by propeller shaft with floating rear axle, the rear wheels being provided with both internal-expanding and external-contracting brakes. The front axle is steel I-beam. The wheels are 36 x 4 1-2 in the rear and 36 x 3 1-2 in front. The touring car has a 120-inch wheelbase and, equipped with a seven-passenger wood body, lists at $4,500, while a turtle-back runabout on the same chassis is offered at the same figure.

The 90-horsepower semi-racer follows similar specifications, but the engine is 6 7-8 bore by 6 1-4-inch stroke. Nickel chrome steel is used wherever possible. The ignition system employs the make-and-break spark with a Simms-Bosch low-tension magneto. The car will be furnished with either shaft or double chain drive, and as a runabout with rumble seat, or turtle-back body, or as a seven-passenger touring car. Fred Crum, a well-known driver, has been engaged by the company as demonstrator and salesman and he will shortly make a speed test to Pittsburg. He will drive in races wherever possible next season, using a 120-horsepower car now under construction. W. D. Drown, in one of the 90-horsepower machines, is shown in the illustration.

Globe Girdler Chas. J. Glidden, now en route for Mexico, expects to reach Houston, Texas, December 22. He expects to cross the Mexican border before New Year's Day.



AFTER A CADILLAC MET AN EXPRESS TRAIN.

HOW THE CADILLAC WITHSTOOD THE SHOCK.

What remained of Model H Cadillac after being struck by an express train is best told by a glance at the picture shown above. The train was bowling along at the rate of sixty miles per hour. An interesting feature of the wreck was that as soon as the car was received at the factory the motor was tried and found to run almost perfectly, notwithstanding the terrific shock it had sustained.

PHILADELPHIA'S SHOW, JANUARY 5 TO 12.

PHILADELPHIA, Dec. 19.—The Philadelphia Automobile Trade Association has secured the First Regiment Armory, and will hold its show January 5 to 12. The dates were not desired, but the securing of a building compelled the week selected.

A WINTER NEW YORK-CHICAGO RUN.

R. G. Kelsey, one of the proprietors of *Brooklyn Life*, and Frank Lescault, mechanical engineer with the Matheson company, of New York, started on Sunday morning, December 16, at 5 o'clock, in a Matheson runabout, to make a run from New York to Chicago. The route laid out passes through Albany, Syracuse, Rochester, Buffalo, Erie, Cleveland and Toledo to Chicago. Mr. Kelsey said before starting:

"It has always been my desire to become the owner of an American car constructed along the best mechanical lines, and in consequence I am taking this trip to demonstrate that a high-class American car can be driven on a reasonably long run in reasonable time, under the worst possible conditions of road and weather."

A wager has been made with Mr. Kelsey that he will not reach his destination within a week.

The adventurous tourists arrived at Albany shortly after noon and remained there over night. Monday afternoon saw them in Syracuse, where the night was spent. Tuesday took them to Buffalo, with a noon stop at Rochester. The roads were described as the limit in their particular line, being covered in some places with snow and ice, and sometimes almost impassable. So far the car has given no trouble of any kind.

R. G. KELSEY LEAVING NEW YORK IN HIS MATHESON.

CLEVELAND'S LATE TRADE NEWS.

CLEVELAND, Dec. 17.—According to George Collister, manager of the Cleveland automobile show committee, Cleveland may secure a large portion of the elaborate decorations to be used in the Madison Square Garden show. This will surpass anything ever seen in Cleveland, although Cleveland shows in the past have been noted for their beautiful decorative effects, that of last year being especially striking. Applications for space at the Cleveland show are coming in at a livelier rate than ever before so far in advance of the event. Indications are that the amount of space allotted to each exhibitor will be smaller than last year.

The plant of the Standard Welding Company is one of the busiest in the country these days. For many months the shop has been running twenty-four hours a day. By means of additions and more equipment, the output of the plant has been increased nearly three times what it was a year ago.

Equally rushed with work is the plant of the American Ball-Bearing Company, which claims to produce more front and rear axles for automobiles than any two concerns in the country. In the past nine months this company has delivered front and rear axles for close to 10,000 automobiles.

Windsor T. White, of the White Company, is said to have recently made the statement that in Japan there are in use more White steam automobiles than all other makes combined.

The Cleveland Motor Car Company, whose business has developed into large proportions during the past two years, is arranging to combine its factory and salesroom in the Whitney block, an immense power block, at the corner of St. Clair street and East Twelfth street. The company will have for factory space three entire floors, 100 feet in depth, fronting on East Twelfth street, giving them about 25,000 square feet of floor space. The entire front on one floor will be used for office, show and salesrooms. W. L. Colt, president of the company, states that the change will be made immediately.

The Royal will have a new retail home in Cleveland. Heretofore the business has been conducted under the name of the Ohio sales department of the Royal Motor Car Company. In the future it will be known as the Reese Motor Car Company, E. Shriver Reese having been in control of it for the past two years, and handling incidentally a line of Columbia electrics. The new establishment will be located on Euclid avenue, near Perry street.

GRAND RAPIDS TO HAVE A SHOW.

GRAND RAPIDS, MICH., Dec. 17.—Grand Rapids will have its first automobile show in March, just after the regular show in Detroit. This was decided at a committee representing the different automobile companies of the city. Besides the cars of local dealers it is expected that many of the outside dealers who exhibit at Detroit will bring their exhibits here, and those manufacturers who are not represented in Grand Rapids especially. Those in charge of the plans are George Hart, of Adams & Hart; Eric M. Lubeck, of the Lubeck Automobile Company; Charles V. and Frank V. Dean, of Dean Brothers; J. F. Johnson, of the Buick-Johnson Company, Mort Luce, of the Luce & Banks Company; A. Richmond, of the Richmond-Jarvis Company; and W. D. Vandecar, who represents the Reo Company.

AUTO SHOW FOR THE NATIONAL CAPITOL.

WASHINGTON, D. C., Dec. 18.—Plans are going forward for an automobile show to be held here during the week of January 28-February 2. The promoters are the Washington Automobile Dealers' Association. Former shows have been held in the armory of the Washington Light Infantry, but it has been decided to hold the next show in the Dupont garage, at 2020-30 M street, N. W. This garage is one of the largest in this section of the country. It has just been completed and will not be used for garage purposes until after the show. The show committee is composed of C. R. Hough, W. C. Long, C. E. Miller, J. M. Stoddard, T. A. Walter, A. L. McCormick and B. C. Washington, Jr.

REO CO. HAS MANY HILL-CLIMBS.

LANSING, MICH., Dec. 17.—In order that its output of cars may be tried on a steep incline before being shipped, the Reo Motor Car Company has constructed at its plant an overhead track, which rises to a height of 22 1-2 feet, and which extends over the outbuildings in the rear of the main factory. The approach to the track has a 30 per cent. rise, and all cars will hereafter be driven up this incline before they are shipped. The track is built of wood and has a width of eight feet. On both sides 18-inch railings have been placed to guard against any possibility of the cars plunging off the track to the ground. The total length of the runway is 468 feet, and the motors that take the machines over are not likely to stop at any of the grades encountered on the road in cross-country driving. The artificial hill climb at the Reo plant has proved to be such a novelty that the residents flock around it in goodly number to see the cars tried out. It is a daily entertainment.

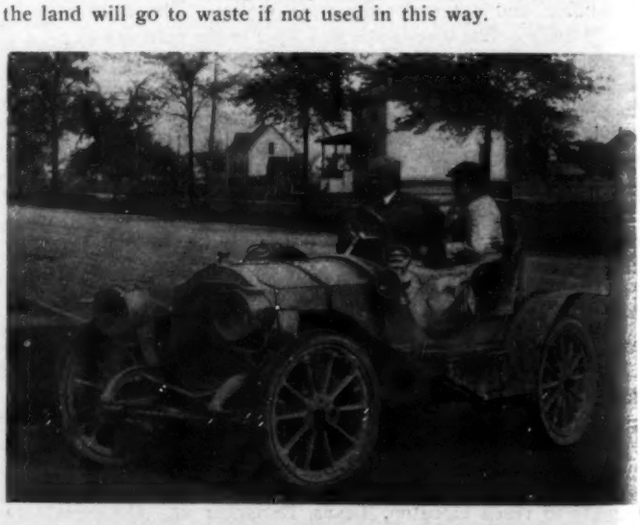
NEARLY SEVEN HUNDRED AUTOS IN MAINE.

PORTLAND, ME., Dec. 17.—The annual automobile report of the Secretary of State has been submitted to the governor. The total receipts for registering and licensing for the past year were $3,082, comprising the following: Dealers registered, 19; receipts, $190; motorcycles registered, 55, receipts, $110; automobiles registered, 647; receipts, $1,294; operators licensed, 744; receipts, $1,488. The expense to the State was: Paid for extra plates, $337, and paid for extra service, $100.

It is very probable that at the session of the Maine legislation, which convenes in less than a month, a bill will be passed which shall require automobiles and operators to be relicensed each year. The question of good roads, which is yearly increasing in importance as automobiles increase in number, will also come up, and is expected to cause a great deal of hard thinking on the part of the legislators.

A SPEEDWAY ON NEW YORK'S AQUEDUCT.

A novel idea for an automobile speedway is embodied in the suggestion that the long, narrow strip of land marking the path of the new aqueduct be converted into a smooth automobile road. The aqueduct will run fifty-five miles from New York through Westchester, Putnam and Dutchess counties to New Hamburg-on-the-Hudson. While there are gaps that would have to be filled, caused by the huge pipe diving under streams and through hills, a number of automobilists of prominence have expressed their belief in the feasibility of the scheme, including Jefferson Seligman and Winthrop E. Scarritt. The strip of land will vary in width from 44 feet to 200 feet, giving plenty of room for two roads, and it is argued by those who favor the idea that the land will go to waste if not used in this way.



W. H. HURLBURT NEW YORK PACKARD REPRESENTATIVE.

NEWS AND TRADE MISCELLANY.

Business men in Emporia, Kan., are planning to organize a company, capitalized at $75,000, to build automobiles.

The Tincher Motor Company, of Chicago, is preparing to erect a factory building in South Bend, Ind., where a site has been selected.

An automobile factory at the corner of Kent and Sterling streets, Streator, Ill., is nearly finished, and will be ready for occupancy in a few weeks.

The firm of McLean & Saulpaugh, of Mankato, Minn., dealers in automobiles, has dissolved partnership, and the business will in future be conducted by Mr. Saulpaugh.

The Orlando & Sanford Automobile & Transfer Company, of Orlando, Fla., has engaged a motor bus expert, Horace J. Wakeman, of Bridgeport, Conn., to run its big car.

C. C. Shoemaker, of Freeport, Ill., is forming a company to manufacture automobiles embodying ideas of his own. A number of the cars have been built and tested, with satisfactory results.

A gasoline runabout embodying a number of new features has been designed and built by F. S. Harmer, of Columbus, O., and steps will be taken to manufacture machines for the market.

The Gray Motor Company, of Detroit, Mich., has arranged for the erection of a two and one-half-story factory of brick and steel. A. C. Varney & Company, architects, are preparing the plans.

The garage business conducted until recently by S. Tenvoorde of St. Cloud, Minn., has been acquired by Harry Branch, who will run it hereafter. Mr. Tenvoorde has removed to Minneapolis.

At a recent meeting of the stockholders of the Capital Auto Company, of Lansing, Mich., E. E. Peake was elected president; Bartley K. Stanchfield, vice-president, and Frank A. Wall, secretary and treasurer.

An electric charging plant is being installed in C. H. Minchin's garage at Greenwich, Conn., and will be ready for the opening of 1907. This business will be handled at the corner of Greenwich avenue and the Boston Post road.

The Brandt-Johnson Auto Supply Company, of Columbus, Ohio, at its annual meeting, re-elected C. Christian Born president and Charles F. Brandt secretary and general manager. It was shown that the year just ended has been a very prosperous one.

In the issue of THE AUTOMOBILE of December 6, the new 30-35-horsepower model of the Moon car for 1907 was stated as listing at $3,000. This was an error, as it should have been put down as $3,500, which is the price of the car for the coming season.

The Hartford Suspension Company took orders for no less than 534 sets of its shock absorbers at the recent automobile show at the Grand Central Palace, New York, in addition to the orders of the fifteen makers whose cars are regularly equipped with these devices.

C. F. Moody, of Devil's Lake, N. D., has entered the automobile business, and will establish a salesroom where a number of makes of cars will be handled. It is proposed to do business on a large scale, making Devil's Lake a distributing center for the surrounding country.

One of the prizes to be competed for at the race meet of the Florida East Coast Automobile Association will be a folding glass front, donated by Col. Sprague, the top manufacturer. The front will be a prize for the event No. 15, five miles with standing start, for touring cars costing from $1,500 to $3,000.

Plans for the Northern automobile factory to be erected in Detroit have been accepted from Architect Harvey. The buildings will have a floor space of 50,000 square feet, and in addition there will be another building for storage purposes. An engineer is now in New York buying the necessary machinery for the plant.

A new lamp number and holder has been brought out by the New York Sporting Goods Company, of 17 Warren street, New York, in which the numbers and frames are separate, the numbers necessary being slipped into grooves in the frame and the flanges then pressed down, making a permanent fastening. Any desired number can thus be made up at a moment's notice.

An attractive and striking illustration in the form of a sepia print showing Judge James B. Dill at the wheel of his Corbin car near his summer home at Rangeley Lake, Maine, is being sent out by the Publicity Department of the Corbin Motor Vehicle Corporation. Judge Dill is an enthusiastic automobilist, making the trip annually in his car from his home in East Orange, N. J., to his summer home in the Maine woods.

At the first automobile show held in Madison Square Garden, the Winton exhibit occupied the central space nearest the main entrance, and by an odd coincidence the Winton exhibit will occupy identically the same space at the 1907 show, January 12-19. There will be this striking difference, however, that, while the early exhibit comprised nothing but single-cylinder phaetons, the 1907 exhibit will have nothing smaller than four-cylinder touring cars.

The Bogart Automobile Company, of Little Rock, Ark., has established an automobile service between Little Rock and Argenta. Beginning with two cars, more will be added if demanded by the traffic. The route lies across a bridge which is much traveled by pedestrians for want of transportation facilities, and the new enterprise is welcomed by the citizens as a relief long needed. The cars will run from 7 o'clock in the morning until after the theatres close in the evening.

Albany business men have formed a company, under the name of the Albany Automobile Company, and will engage in the manufacture of automobiles as soon as the necessary arrangements can be completed. The company already has a factory in the Grand Hotel building. J. S. Tulley is superintendent and president; James B. McNary, secretary; William S. Corey, treasurer and business manager; and the officers together with Walter Bryan form the board of directors.

The following amusing letter was received by the Diamond Rubber Company, of Akron, O., from a man whose name had evidently been given to automobile supply dealers as a "sure thing": "I have got about 500 letters from automobile people, and it is a mystery to me. I never saw an automobile in my life, and there is not one in this country. I guess your Diamond Wrapped Tread Tires are all right, and if everyone that writes to me will send me what they have, I will soon own an automobile myself, and some for the children, which number is twelve in all."

As indicative of the painstaking attention to detail that has been lavished on the 1907 Thomas Flyer, the provision of an independent oil lead for the lubrication of the fan bearing may be cited. Fan troubles in the shape of slipping and breaking belts have also been obviated and the fan behind the Thomas radiator is now solidly mounted on a substantial pedestal, and is driven by means of a vertical shaft and bevel gearing. Both the result of neglect on the part of the driver to oil the fan bearing as often as required, as well as annoyance from a belt are avoided in this way.

Negotiations for the establishment of a branch plant of the Northern Automobile Company, of Detroit, Mich., in Port Huron, Mich., have been brought to a successful close. Work has immediately been begun on the construction of buildings, which are expected to be complete within sixty days, at the end of which time the plant will begin operations. The plans provide for a brick structure with a floor space of 50,000 square feet and a storage annex. About 400 men will be employed. The local board of trade hopes to induce the Northern company to move its main plant to that city as well.

Under the title "Sparrow; a Story of Packard Efficiency," the Packard Motor Car Company, of Detroit, Mich., has issued an illustrated pamphlet recounting the victories of the high-speed motor boat "Sparrow," a 30-foot craft fitted with a Packard automobile motor of 24 horsepower—a regular 1906 motor. The record of the little racer shows that the motor was possessed of remarkable speed and even more remarkable staying qualities and reliability. The pamphlet is written in a very entertaining style, and gives a great deal of information as to the construction of the motor.

Ignorance is the root of most tire troubles, and the Continental Tire Company, acting on this belief, will assign one of its most expert tire specialists to a free "demonstrating service." This expert will visit all the leading automobile factories in the country and give practical demonstrations of the art of mounting and dismounting clincher tires in the correct and easiest manner. The instruction supplied will cover all the phases of the tire question, such as style of rim, precautions to prevent injury to the rubber, and directions for getting from the tire the maximum value.

Inter-city record hunting is still the chief pastime of the California motorist. In fact, it is a habit. The Wayne cars are the latest to achieve distinction in this field by taking a substantial slice off the Los Angeles-Riverside record. The distance is seventy miles, and E. J. Bennett, Los Angeles representative of the Wayne, accompanied by two newspaper men and a chauffeur, covered this stretch recently in two hours twenty minutes actual running time, lowering the former official record by the generous margin of twenty minutes. Immediately after this performance the same car covered the hill climb course from Pasadena to Altadena in excellent shape.

NEW AGENCIES ESTABLISHED.

The Aerocar will be represented in Providence during 1907 by James M. Clarke, who will open salesrooms at 134 Washington street.

The sole agency for the State of Rhode Island for the Royal Tourist cars has been secured by Arthur S. Lee, of 52 Richmond street, Providence.

Graham & Goodman, 51-55 West Ninety-third street, manufacturers of the Graygood shock absorbers, will be the distributers for Greater New York and vicinity for the St. Louis car, made by the St. Louis Motor Car Company, Peoria, Ill., and will sell cars with a guarantee of free repairs for six months.

The new Boston branch of the Dragon Automobile Company is to be opened at an early date at 117 Massachusetts avenue. There F. S. Corlew, vice-president and general sales manager of the company, and "Smalley" Daniels will introduce the Dragon car to the automobile-buying public of Boston, previous to its exhibition at the Boston show.

The Rainier Company, of Broadway and Fiftieth street, New York, arranged during the show at the Grand Central Palace for the following new agencies: Boston, the Buck & Price Company, 901 Boylston street; Rochester, Thomas J. Northway, 91 Exchange street; Newark, N. J., Coburn & Belden, 577 Central avenue; and Pittsburg, Pa., A. L. Richmond, Jr., 507 Wood street.

Owing to the rapid increase of its already large business in the South, the H. W. Johns-Manville Company, of New York, will open a branch in New Orleans on January 1. The location will be a large three-story brick building at the corner of Baronne and Perdido streets and will consist of a large retail store, offices and warerooms. The company is well known as an extremely large producer of asbestos and magnesia products. Electrical specialties are also manufactured.

Los Angeles, Cal., is to have an addition to its automobile row, Paul Billington having formed the Billington Motor Car Co., and secured the representation in Southern California for the Knox waterless line of pleasure and commercial vehicles. The new company is erecting a very handsome and substantial three-story garage in the business district of the city, designed to meet every need of the growing business. Mr. Billington has been spending the past two weeks at the Knox factory, absorbing the details of the Knox construction.

The Wayne Automobile Company, of Detroit, Mich., has established the following new agencies: Lake Del Auto Company, St. Louis, Mo.; Walden W. Shaw, Chicago; West Side Motor Company, Hamilton, Ohio; Capital Auto Company, Indianapolis, Ind.; Linscott Motor Company, Boston, Mass.; Commercial Auto & Supply Company, Washington, D. C.; Liberty Auto Company, Pittsburg, Pa.; University Automobile Company, New Haven, Conn.; Soules-Welch Motor Car Company, Detroit, Mich.; Troy Carriage Works, Troy, N. Y.; Evans Motor Company, Minneapolis, Minn.; McKinley Motor Company, Rochester, N. Y.; J. W. Leavitt & Company, San Francisco, Cal.; E. J. Bennett, Los Angeles, Cal.; Central Automobile Exchange, Providence, R. I.

Monday was "settling day" for the new agents of the York Motor Car Company. A large number of them gathered at the New York agency, the Bouton Motor Company, 1675 Broadway, where S. E. Baily, president, James A. Kline, general manager, and J. C. Fairman were on hand to close up the final contracts and receive deposits. The following is a list of the principal agencies closed: The Pullman Automobile Agency of Los Angeles, Cal.; H. A. Stone, manager; Stanley A. Hooker, Cincinnati, Ohio; Ralph Temple, Chicago, Ill.; Holland Garage, Easton, Pa.; Keystone Motor Car Company, Harrisburg, Pa.; Pennsylvania Auto Company, Pittsburg, Pa.; Shaffer Manufacturing Company, Baltimore, Md.; Snyder Auto Company, York, Pa.; J. H. Sullivan, New London, Conn.; Northern Auto Agency, Boston, Mass. The only important agencies as yet unsettled are Philadelphia and Washington.

PERSONAL TRADE MENTION.

George F. Kehew, formerly with the C. B. Blomstrom Company, of Detroit, has been appointed sales manager of Moon Motor Car Company, of St. Louis.

B. J. Collins, formerly with the B. F. Goodrich Company, has joined the forces of the Continental Caoutchouc Company, and is now acting as its general representative.

Charles Clifton, president of the Association of Licensed Automobile Manufacturers and treasurer of the George N. Pierce Company, is attending the Automobile Salon in Paris.

Louis Sackett has resigned from the sales managership of the Moon Motor Car Company, and this week takes charge of the agency department for Smith & Mabley, Inc., for the Simplex cars and motor boats.

J. Murray Page, for the past seven years connected with the Locomobile Company of America, of Bridgeport, has resigned that position to accept a position with the Locomobile agency in San Francisco, California.

C. H. Tangeman, president of the Hol-Tan Company, has just returned from an extended visit to the Fiat factory at Turin, where, he states, there are forty-one automobile factories. The most prominent cars of the Fiat line for 1907 will be a 50-horsepower six-cylinder model and a 15-horsepower town chassis. In designing these the same lines that have always characterized the Fiat four-cylinder type have been followed. They will be shown for the first time in the Garden next month.

Charles A. Hawkins, who has been identified with the White interests on the Pacific coast for eighteen years, has been made Western salesmanager for the new White Company, his territory including all the country west of the Mississippi river, as well as the State of Illinois and part of Indiana. Notwithstanding his many duties in connection with the White Company's business, Mr. Hawkins has found time to take part in important commercial enterprises with the Spreckels group of capitalists. Webb Jay will be his right-hand man in and about Chicago, and his lieutenant on the Pacific coast will be W. M. Gardiner, who has also been associated with the White Company for a long time.

NEW TRADE PUBLICATIONS.

The Winton Motor Carriage Co. has issued two booklets, "Presenting the Advantages of Model M" and "Presenting the Advantages of Type X-I-V," describing the Winton models for 1907. These pamphlets are well gotten up and really give information about the cars—which cannot be said of all catalogues.

A departure from the beaten track of automobile advertising was made by the George J. Scott Motor Company, of New York, agent for the Glide car, in getting out a catchy song "Take a Glide with Me," as a means of giving publicity to the name of the Glide car. The words are by Maurice E. Marks and the music by Wm. H. Smith.

Of the 1907 automobile literature being distributed, a particularly fine example is the new catalog sent out by the Autocar Company, of Ardmore, Pa. The book contains a number of large half tone cuts of the cars and various working parts, and is a work of art, as well as a concise exposition of the mechanical details of the Autocar.

There is a place on nearly every desk in automobiledom for the Pope Motor Car Company's desk pad calendar, in its neat metal frame, and it was simply in the natural order of things that Robert L. Winkley, manager of the department of publicity, should send out the calendars for the year 1907. In fact, it would cause much surprise if the usual souvenir was not forthcoming, it has been coming regularly for so many years.

RECENT INCORPORATIONS.

Kennesaw Motor Company, New York; capital, $1,000. Directors, E. W. Wrenn, E. Pope and R. Fleming.

Hotchkiss Car Company, Chicago; capital, $10,000. Incorporators, L. J. Haighter, Myer S. Emrich and M. E. Hotchkiss.

Oscar Brown Motor Car Company, Camden, N. J.; capital, $100,000. Incorporators, H. O. Brown, F. R. Hansel and J. A. MacPeak.

Kline Company, Chicago; to manufacture automobiles and parts; capital, $15,000. Incorporators, L. Kline, George H. McCune and Samuel Hale.

Ray Motor Company, Connersville, Ind.; capital stock, $100,000. Incorporators, J. J. Maloney, Bowen Ray, W. S. Gilder, Louis D. McFall and J. F. Geary.

Brush Runabout Company, Jersey City, N. J.; to manufacture automobiles; capital, $200,000. Incorporators, H. O. Coughlan, B. S. Mantz and John R. Turner.

United States Automobile Exchange, Chicago; to conduct a garage business; capital stock, $2,500. Incorporators, F. M. Grier, E. M. Kemper and Heath Gregory.

Corbin Motor Vehicle Corporation, Cold Spring, N. Y.; to manufacture motors and engines; capital, $5,000. Incorporators, M. S. Hart, E. H. Brandt, and L. Maskle.

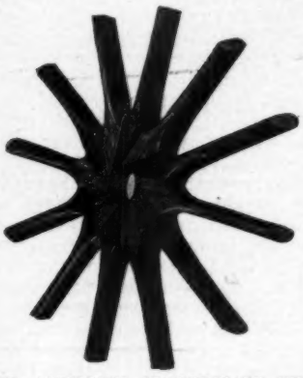
Bishop, McCormick & Bishop, Poughkeepsie, N. Y.; to manufacture and deal in automobiles and motors; capital, $51,000. Incorporators, Eli H. Bishop, Bartol T. Bishop, and John McCormick.

General Accumulator and Battery Company, Milwaukee, Wis.; to manufacture electric automobiles and machinery; capital, $25,000. Incorporators, R. J. Fleisher, A. J. F. Uchitil and H. G. Decker.

Dealers' Automobile and Development Company of Rahway, N. J.; to manufacture, deal in and repair automobiles; capital, $125,000. Incorporators, Charles W. Nichols, Samuel D. Mershon and Herbert H. Walker.

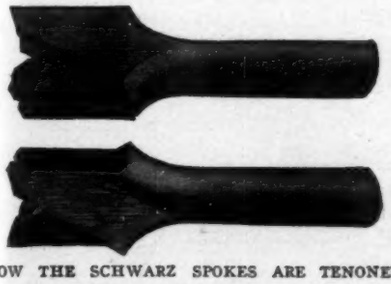
INFORMATION FOR AUTO USERS.

Schwarz Artillery Wheel.—One of the difficulties encountered in manufacturing wheels for heavy automobiles is the tendency of the spokes to loosen under the varying stresses to which they are subjected, and it is absolutely necessary to overcome this before good results can be obtained. The wheel made by the Schwarz Wheel Company, of Philadelphia, Pa., is constructed on a peculiar principle which



SPOKE ASSEMBLY OF SCHWARZ WHEEL.

gives the wheel remarkable strength and keeps it true under severe service. The feature of the Schwarz wheel is the grooving and mortising of the inner ends of the spokes. The accompanying illustrations show how the mortising is done and how the spokes are put together. The spokes interlock, as shown, and are immovable, regardless of stresses, supporting each other and distributing the weight of the load. They are put together one at a time under pressure. The distances between the spokes are exactly the same all round the wheel. No hub flanges are needed in making the wheel; they can be put on at any time and

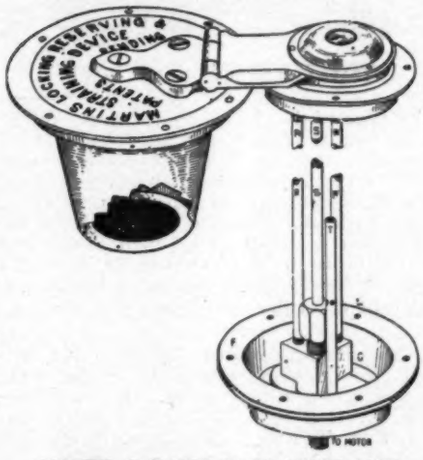


HOW THE SCHWARZ SPOKES ARE TENONED.

are practically unnecessary until the wheel is put on its axle. The wheel can be made complete, the rim for the tire put on and the wheel shipped without hub flanges—a strong point in its favor. Wheels are made with twelve spokes, unless otherwise ordered, and are primed before shipping. Channel rims are fitted at standard prices. Any desired dish can be given to the spokes.

New Curtain Fastener.—There are few things more unpleasant to the automobilist than to have the side curtains of his car come unfastened perhaps during a rain storm, allowing the wind and rain to make his passengers uncomfortable. A new curtain fastener recently placed on the market by the G. W. J. Murphy Company, of Merrimac, Mass., is designed particularly to resist the vibration and severe stresses imposed by the fast motion of the automobile. The manufacturers state that the Murphy fasteners will hold the curtains, no matter how severe the vibration may be. So confident are they of the merits of their device that they will ship the first order to any reliable firm on approval.

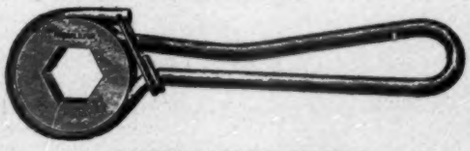
Tank Lock.—The accompanying illustration shows the Martin reserve and locking device for gasoline tanks in either automobiles or motor boats. The device can be attached to any gasoline tank and will serve for a filler plug in addition to its other functions. Under the removable cover is a metal gauze strainer. There are three valve stems operated from the top of the tank and kept under lock and key. The valve *S* controls the regular supply of gasoline to the engine, and is used as a lock by shutting off the gasoline and then locking down the cover. The stem *W* operates a pet-cock for draining off water from the bottom of the tank,



MARTIN GASOLINE TANK VALVE LOCK.

a water cup being provided. Stem *R* controls the valve which allows the reserve supply of gasoline to flow to the carbureter. The tube *T* makes it possible to reserve a certain amount of gasoline in the tank which cannot be used until the valve *R* is opened. The owner of the car can make this quantity whatever he chooses by regulating the height of the pipe opening. When the valve is opened all the gasoline in the tank flows direct to the carbureter just as if there was no reserve device in the tank. The lock in the cover closes with a snap and cannot be opened without the key. The lock is of a high-grade modern type.

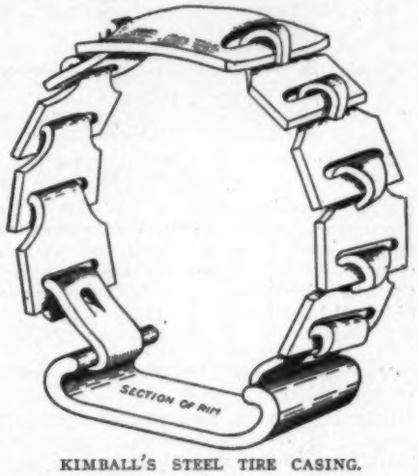
New Ratchet Wrench.—A ratchet wrench that is at once simple, light and convenient to use has been placed on the market under the name of the Walden ratchet wrench by Patterson, Gottfried & Hunter, of 150 Centre street, New York.



WALDEN RATCHET WRENCH.

The wrench is illustrated herewith, and is so simple that little description is required. The ratchet teeth are cut in the periphery of the head and the steel wire handle holds it in position and at the same time forms the spring pawl. The ratchet will work in either direction, the nut always turning in the direction in which the pawl points. A ratchet wrench has a number of advantages over the ordinary type. Once the wrench has been applied to a nut it need not be removed until the nut is loosened, thus saving time and trouble, and also avoiding burring or marring the nut. Walden wrenches are made in sizes to fit the nuts commonly used in automobile work, both square and hexagon.

Steel Tire Casing.—A device for protecting pneumatic tires from punctures and wear from road friction and to prevent slipping and skidding has been brought out

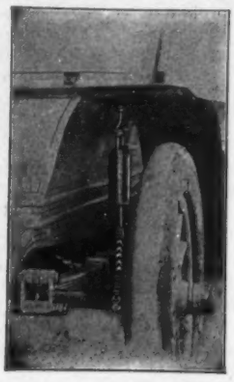


KIMBALL'S STEEL TIRE CASING.

by C. E. Kimball, of Council Bluffs, Iowa. This consists of a series of bands encircling the tire from rim to rim, the bands being made of flat links of steel hooked together. At the tread there is a broader plate. Each hook projects slightly, forming a sort of calk, and the combined effect is to give a roughness that makes the tire grip the road securely. The end links, next to the rim edges, hook under the in-turned edges of the rim, between tire and rim. These link bands are put on close together all round the tire, forming a continuous flexible armor that leaves only a very small chance of puncture and almost entirely prevents wear. The manufacturer states that in experimenting with early forms all kinds of trouble cropped up; links broke, bands cut the rubber shoe, and so on. Persistent efforts, however, overcome these and other difficulties, and the casing is now entirely practical for constant, every-day use.

Spring Recoil Check.—A spring recoil check designed to prevent the unpleasant jouncing resulting from the violent recoil of the springs of an automobile on rough roads has been developed by the Baldwin Chain and Manufacturing Company, of Worcester, Mass., and embodies an ingenious combination of friction and spring resistance. The illustration on page 906 shows the arrangement of the parts. The yoke *H* serves to attach to the frame of the car the rods carrying two sets of compound springs, each set in a casing. A central cylinder is fitted with a sort of plunger made in sections and covered with compressed cork; this plunger is designed to produce a frictional resistance when the toggle arms at *B* are drawn down, spreading the piston segments apart. As long as the range of action of the springs is normal—not sufficient to cause bouncing or tossing—the piston is practically motionless and

the compound springs are in constant motion. But as soon as the range becomes excessive the rebound is caught and checked by the piston, and as soon as the springs return to their normal action the piston again comes to a standstill and the



BALDWIN SPRING RECOIL CHECK.

compound springs take up the work. The House recoil check, as the device is called, is the result of a long series of practical tests under actual working conditions, and the manufacturers state that the results obtained have been satisfactory in the highest degree.

Yankee Muffler.—The Yankee muffler, manufactured by D. B. Smith & Co., of Utica, N. Y., has two separate compartments. In the first the exhaust gases are merely expanded, so that their pressure is greatly reduced and the temperature is lowered. In the second chamber the gases are divided into minute streams and pass into the atmosphere silently. The manufacturers state that the sound of the exhaust is so completely muffled that it cannot be heard without opening the cut-out valve. It is also claimed that the cut-out is of no use except for this purpose and to blow signals, as there is practically no back pressure. Therefore the muffler is especially

YANKEE MUFFLER IN VARIOUS SIZES.

adapted for use with two-cycle engines, which are very quickly affected by back pressure, and for this reason are often very inadequately muffled. All sizes are made, for both automobile and marine work. The shells are of sheet iron, riveted, and the heads are cast iron, held in position by three long rods running through from end to end and double nutted at the ends. This arrangement makes it easy to take the muffler apart for cleaning or examination and is amply strong.

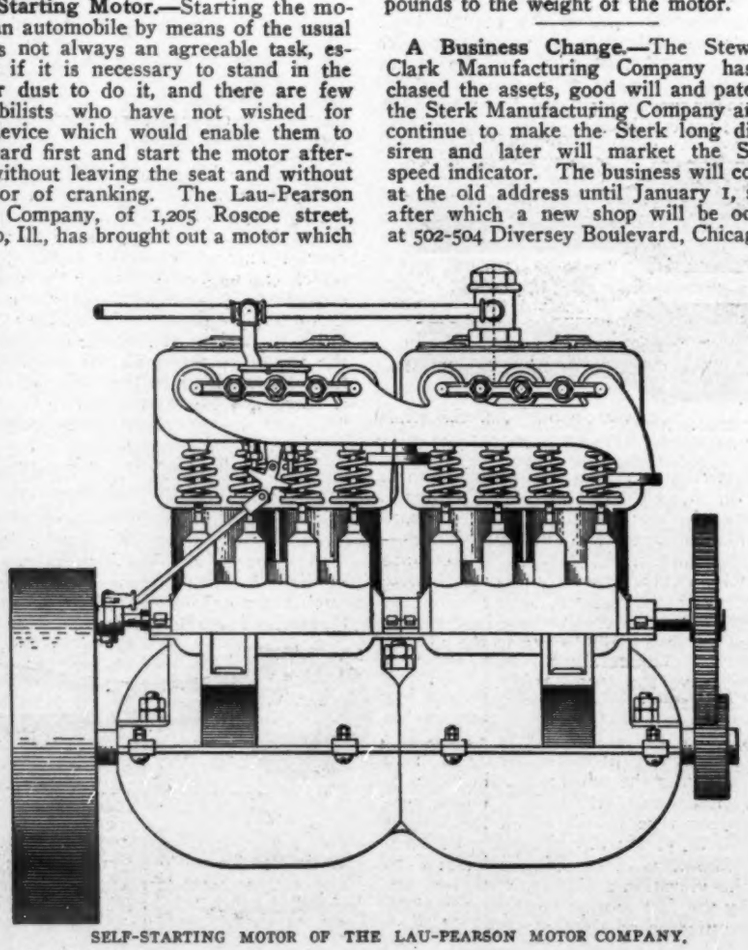
For Repairing Blowouts.—Prevention is better than cure, of course; but tire manufacturers have not yet arrived at such a state that they can prevent occasional blowouts, and therefore such troubles must be cured when they occur. Means for effecting the cure have been devised by Traver & McNamara, of 333 Central avenue, Far Rockaway, N. Y., in the form of a patch or reinforcement that is made to fit between the inner tube and the shoe. It is easily fitted and obviates the necessity of carrying an outer shoe. When a new shoe is put on the Traver Patch may be put back in the tool-box for future use. This reinforcement, which goes under the damaged section of the tire, is made of heavy fabric with a rubber coating; inside there is a soft rubber lining to prevent it chafing the inner tube. There is a brass lock on the patch which is placed under

TRAVER BLOWOUT REPAIR PATCH.

the edge of the tire when deflated. When the tire is again inflated to its usual pressure the patch is securely held and will stay until removed. The Traver patch is made in two sizes to fit Dunlop, Fisk and clincher tires from 28 by 3 inches to 36 by 4 1-2 inches and the price is $3.50 for the smaller size and $5 for the larger. When ordering, the size of the tire should be given.

Self-Starting Motor.—Starting the motor of an automobile by means of the usual crank is not always an agreeable task, especially if it is necessary to stand in the mud or dust to do it, and there are few automobilists who have not wished for some device which would enable them to get aboard first and start the motor afterward without leaving the seat and without the labor of cranking. The Lau-Pearson Motor Company, of 1,205 Roscoe street, Chicago, Ill., has brought out a motor which is started by compressed air from a receiver which is filled while the motor is running; starting is effected by pressing a pedal which admits air to two of the cylinders and throws a special set of cams into operation. As soon as the other two cylinders commence exploding their charges the cams are automatically thrown out and the whole engine runs normally. The supply of compressed air is obtained by using the third cylinder, counting from the rear end of the motor, as a pump, a balanced reducing valve being placed over the inlet valve. The valve can be adjusted to any desired pressure; from 80 to 100 pounds has been found to be the most advantageous pressure under ordinary circumstances. The motor must of course be started for the first time in the ordinary way, until there is compressed air in the receiver; but thereafter the crank may be ignored, as the receiver will hold its air almost indefinitely. A pedal placed within convenient reach of the operator's foot is pressed when it is desired to start the motor. This action causes the camshaft to shift and bring a set of auxiliary valves under the exhaust valves of the two rear cylinders only, reducing the compression by half; and at the same time the intake pipes from the carbureter to the two forward cylinders are closed and the air valve is opened, admitting air to the forward cylinders. The two forward cylinders now act like steam engine cylinders and drive the two rear pistons. As soon as these take up the drive properly the camshaft automatically shifts to its ordinary running position, the intake pipes are opened, the air shut off and the motor runs as a four-cylinder gasoline motor of 30-35 horsepower. The manufacturers state that the self-starting device does not add more than 15 pounds to the weight of the motor.

A Business Change.—The Stewart & Clark Manufacturing Company has purchased the assets, good will and patents of the Sterk Manufacturing Company and will continue to make the Sterk long distance siren and later will market the Stewart speed indicator. The business will continue at the old address until January 1, shortly after which a new shop will be occupied at 502-504 Diversey Boulevard, Chicago.



SELF-STARTING MOTOR OF THE LAU-PEARSON MOTOR COMPANY.